The Journal of the American Medical Association

Published under the Auspices of the Board of Trustees.

VOL. XLVII. CHICAGO, ILLINOIS, AUGUST 18, 1906. No. 7.

Original Articles

TUMORS OF THE CAROTID GLAND.*

W. W. KEEN, M.D., LL.D.
Professor of Surgery, Jefferson Medical College.
and
JOHN FUNKE, M.D.
Demonstrator of Morbid Anatomy, Jefferson Medical College.
PHILADELPHIA.

SURGICAL PART BY DR. KEEN.

A recent case of this rare specimen of tumor has interested me very much and led me to present for consideration a résumé of all the reported cases and some clinical remarks based on a study of them. My own case is as follows:

Patient.—R. M., male, aged 56, first consulted me March 30, 1905, for a large tumor on the left side of his neck. He stated that he first noticed the tumor about eighteen years ago and that it has slowly but steadily increased in size. There has been no pain, no dysphagia, no dyspnea, in fact, one may say, no symptoms save the existence of the tumor as a slowly increasing deformity.

Examination.—Chiefly anterior to the sternocleidomastoid, but extending under it all the way to its posterior border, I found a tumor measuring horizontally 13 cm. and extending from the lower border of the jaw vertically 10 cm. downward. It was soft, but not fluctuating. The tumor pulsated, but it was clearly a transmitted pulsation from the carotid artery. From the feel I judged it to be a lipoma and advised its immediate removal.

Operation.—On April 4, 1905, I made an incision along the anterior border of the sternocleidomastoid. As soon as the tumor was exposed, I was almost convinced it was an ectopic goiter from a supernumerary thyroid gland. It had the same kind of capsule under which ran very many very large veins. The color of the mass also closely resembled that of a goiter. But my diagnosis was quickly changed to that of tumor of the carotid gland when I found that the carotid artery seemed to run through the body of the tumor and the internal jugular vein on its anterior surface, and that these vessels were so adherent to the tumor that it was impossible to remove it without ligating and exsecting a large portion of the vein as well as the three carotids. Accordingly I ligated the common, internal, and external carotid and the internal jugular vein and removed the tumor entire. I had great difficulty with the hemorrhage during the whole operation. The tumor seemed to bleed at every point. I judged, though without counting them, that I applied fifty or sixty ligatures. During the dissection, the pneumogastric, sympathetic and hypoglossal nerves, the esophagus and the trachea were all exposed, but I succeeded in dissecting the tumor from all these structures without injuring them. The operation lasted over an hour and a half. At its close the man's pulse was 98, respirations 18, and temperature 97. By 8 a. m. the next day these had risen respectively to 90, 20 and 100. At 9 a. m. he suddenly had an attack of severe dyspnea. Within a few minutes I saw him and found an oncoming acute edema of the lungs. This increased rapidly and with it his temperature rose to 103 and his pulse and respirations became more frequent. He died at 8 a. m., on the morning of April 6, forty-five hours after the operation. Twenty-four hours after the operation I removed the gauze packing, there had been very little oozing and there was none subsequent to the removal of the gauze. The wound looked absolutely well. A postmortem examination was sought, but denied. Figure 1 shows the appearance of the tumor externally and on section.

While my diagnosis prior to operation had been probably a lipoma, I had felt considerable doubt as to the accuracy of the diagnosis, both by reason of the position and the general character of the tumor. As soon as I discovered its relation to the blood vessels I instantly recognized it as a tumor of the carotid body. I gave the specimen to Dr. Funke in the laboratory of the Jefferson Medical College, knowing that he had already made a special study of such tumors. His report is as follows:

PATHOLOGIC REPORT BY DR. FUNKE.

Gross Specimen.—The tumor consists of an ovoid mass, 8 cm. long and 5 cm. in its maximum diameter; weight, 100 gm. One end is slightly larger than the other. One surface or aspect of the tumor is considerably flattened while the other is distinctly convex, giving the specimen very much the outline of a small kidney. The surface is covered by a thin fibrous capsule. The general color is gray, but there are many dark red areas 0.2 to 2 cm. in diameter, apparently due to interstitial hemorrhage. Projecting from a point near one extremity of the flattened surface previously mentioned, is the severed end of an artery, 0.7 cm. in diameter. One centimeter beyond the point of severance, the artery divides into two unequal sized branches, one of which passes along either surface of the specimen for a distance of 4 cm. The disposition of the vessels makes the tumor appear as though springing from a fork formed by the branches. Around one vessel the growth has extended until it formed a groove slightly deeper than the vessel itself. The other branch is more superficial. To the larger branch on the side toward the fork, for a distance of 1.3 cm. from its formation, the tumor is intimately attached; the sheath of the vessels and the capsule of the tumor being directly continuous. The outer portions of the vessels are less firmly attached to the tumor. The entire growth is very dense. An incision partly divides the mass and exposes grayish surfaces which are marked by reddish areas. Near the margin of the surfaces are two circumscribed reddish-black areas, 2 cm. in diameter. Faint lobulation by grayish bands is present and the surfaces appear granular.

Accompanying the tumor is a small mass of tissue containing what appears to be two enlarged lymphnodes; the larger one is 1 cm. in length. These nodules and portions of the tumor were fixed in Zenker's fluid and the remainder of the tumor was preserved in Kaiserling's fluid. Sections were cut from both the tumor and the lymphnodes; they were stained with hematoxylin and by van Gieson's method for connective tissue, by Mallory's reticulum stain and with polychrome-methylene blue.

Histology.—The sections are bounded on one side by a dense fibrous capsule in which are many lymphoid elements, some spindle-shaped connective tissue cells and many strands of wavy elastica. In most places the capsule is sharply defined from the underlying structure, although at one point the distinction is poorly marked. At this particular point a broad

* Read in the Section on Surgery and Anatomy of the American Medical Association, at the Fifty-seventh Annual Session, June, 1906.

trabecula penetrates the adjacent tissue. From the capsule many such fibrous strands emanate and dip into the tumor mass; in the center of which they are found in cross and longitudinal sections, often showing hyalin degeneration. These bands are largely composed of dense wavy fibrous tissue, among which are delicate strands of elastica, large and small blood-containing vessels; around the latter the elastica is especially conspicuous. In addition to the lymphoid elements in the fibrous bands are cell-like structures, which fail to react

Fig. 3.—Endothelioma of carotid gland. A, an alveolus with contained tumor cells; B, blood vessel from which capillaries arise and form alveolar walls (Zeiss obj. 2/3; eye piece 1½ in.) (Funke.)

to the ordinary histologic stains. It is difficult to determine whether the small bodies within them are nuclei or foreign bodies. These cell-like structures measure from 10 to 20 microns in diameter; they are sometimes oval, sometimes circular and are tinged yellowish-brown. The contained nuclei-like bodies are round or oval, are highly refractile and are

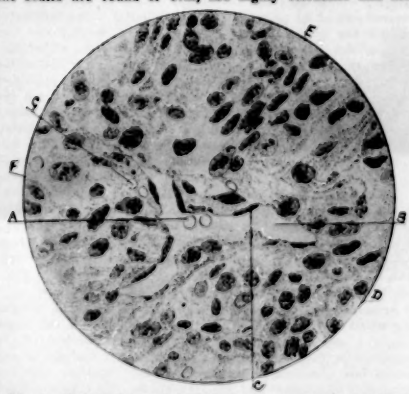


Fig. 4.—Endothelioma of carotid gland. A, red blood cells in capillary; B, capillary forming the walls of three alveoli; C, endothelium of capillary; D, E, F, tumor cells; G, red blood cells among the tumor elements (Zeiss obj. 1/16 oil im., eye piece 1½ in.) (Funke.)

at least two and sometimes four in number. The cell-like structures are often found among the tumor cells also; they are perhaps identical with the chromaffine cells described by Kohn.

The structure underlying the capsule is distinctly alveolar, in some places lobulated. (Fig. 3). Immediately beneath the limiting membrane the alveolar arrangement is less conspicuous, due perhaps to the smallness of the alveoli and to the great number of the contained cells. The walls of the spaces are frequently made up of delicate capillaries; other walls are composed of fibrous tissue, evidently constituents of the fibrous trabeculæ. In some places comparatively large vessels give origin to capillaries which anastomose, creating many spaces on all sides of the larger vessels. (Fig. 3 B.) Occasionally the capillaries are wide and contain fairly well preserved erythrocytes; others are mere chinks, the endothelium of one wall being almost in contact with that of the other occasionally, even these capillaries contain red blood cells. (Fig. 4). The size of the alveoli varies; the alveoli not a great distance from the capsule rarely exceed 0.1 mm. in diameter, many do not attain such a diameter, being but 0.05 mm. At a point some distance from the capsule the size of the alveoli is much greater, although this feature varies in different sections, the findings being inconstant. Here they reach 0.4 mm. The shape, like the size, varies, the smaller one being either circular or oval, while in the larger one the long exceeds the short diameter, four and even five times. Very often with Mallory's reticulum stain fields are found where the tumor cells are in strings extending from one alveolus into the other, clearly indicating communication between these structures.

The cells in the alveoli vary in size and shape. This statement can not be held as absolute, since packing of the cells in the greater number of the spaces precludes a detailed study so that the deduced facts must be based on the study of the isolated elements. The statement relative to the size of the alveoli in the preceding paragraph indicates, of course, that the number of cells in the different spaces varies. In the smaller alveoli the count does not exceed 25 or 30, while in the larger ones at some distance from the capsule the number may reach 60 or 70; such numbers in a single alveolus are only possible by overlapping of the cell protoplasm. From the isolated elements one is justified in saying that the cells vary from 15 to 20 microns in diameter and that their shape is at times polyhedral, at other times oval. In a large majority of instances the arrangement of the cells within the alveoli is indiscriminate, only now and then is a space found where the elements are so placed that the long axes of the cells are at a right angle to the alveolar wall. Speaking principally of the isolated cells the protoplasm is finely granular and acidophilic; the granules are not closely set, hence this substance is fairly transparent; the absence of the cell membrane is largely responsible for this condition of the protoplasm; it is also responsible for the jagged margins of the cells as well as for the irregularity of their shape. Vacuolation of the protoplasm is rare; it was found but once or twice. The nuclei can be studied with a greater degree of accuracy owing to the fact that their outlines are clear. They vary in size and as a rule are oval, a few are circular, some are spindle-shaped; they are vesicular and sharply circumscribed from the protoplasm. The chromatin granules are rather scanty, those present are disseminated throughout the nuclei, but aggregation is greater at the peripheries; the centers of many of the nuclei are for the most part hyalin, but they are traversed by one, sometimes two and even three, delicate chromatin-containing strands. The most striking feature of the nuclei is the uniformity of structure; only now and then can a cell be found the nucleus of which does not conform to the de-

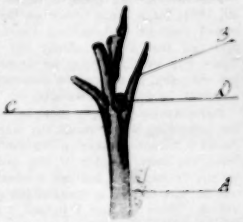


Fig. 5.—From a dissection by Dr. Funke. Carotid gland, natural size, from a seven months' fetus. Seen from the posterior surface of the artery. A, common carotid artery; B, internal carotid; C, external carotid; D, carotid gland.

scription given. Such cells are smaller, the nuclei are smaller and the chromatin granules closely set, the nuclei, of course, stain with greater intensity with the basic dyes.

At one point in the sections the alveolar structure and the disposition of the cells are extremely instructive. Here one can demonstrate small capillaries forming the alveolar walls which are apparently composed of two layers of cells, evidently closely allied to the cells of the alveoli. It is impossible to differentiate the individual cells comprising the capillary walls, but the nuclei of those cells lying next to, or lining the lumen, are spindle-shaped, the chromatin granules are in close contact with one another and the reticular structure is inconspicuous. Similar cells have been described in the latter part of the preceding paragraph. The outer layer is made up of cells the nuclei of which are structurally like both the cells lining the lumen of the capillary and those of the alveoli. These nuclei are not distinctly spindle-shaped, but assume the shape of an object the poles of which are more blunt, tending toward an oval. The structure of the nuclei is less compact, the chromatin granules are not closely set, hence the staining is less intense and the reticular structure is more conspicuous. The long axes of the nuclei are parallel to the lumen of the vessel. Lying at the periphery of the alveolus, now being considered, and closely associated with the cells just described, are other cellular elements not markedly different from the latter, but identical with the cells of the alveolus; some of these cellular elements are placed at a right angle, others at an acute angle, to the capillary wall.

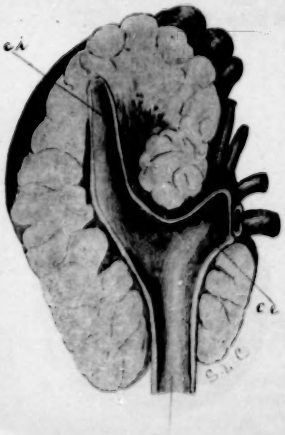


Fig. 6.—Sagital section (Marchand's Case 1). A., carotis communis; C. I., carotis interna; C. E., carotis externa.

It is not uncommon to find points where the elements of the alveoli or the *Zellballen* of the German writers (Figs. 23 and 24) are disposed around capillaries, more or less crudely, in concentric rings. This is especially seen in the larger alveoli. These capillaries, perhaps, represent the walls of alveoli and the elements disposed around them are cells from different spaces.

Many alveoli, especially the larger ones, contain considerable blood. This substance, as a rule, occupies the periphery of the spaces; occasionally it is among the elements of the *Zellballen*. The hemorrhage is most marked some distance from the capsule, although that structure contains erythrocytes.

Among the tumor cells, in the blood vessels, and in the framework of the neoplasm, are fuchsinophilic bodies, varying from 10 to 20 microns in diameter. They are finely granular; the granules are intensely fuchsinophilic. When they are found free in the spaces there is no evidence of nuclei, but when in the midst of the tumor cells they appear to contain concentrically placed nuclei which in all probability are nuclei of overlying cells. The fuchsinophilic bodies are conspicuous in the blood vessels where they appear to be attached to the walls. The lymphnodes show no noteworthy change and are not participating in the neoplastic process.

Diagnosis and Remarks.—Although this form of growth is referred to as "perithelioma," the fact that the cells around the vessels do not differ from those constituting the inner stratum of the intima, suggests, that for simplicity's sake such neoplasms should be grouped with the endotheliomata.

While the tumors of the carotid body grow for long periods of time without producing any appreciable effect on the health of the patient, the infiltration of the outer sheaths of the carotid vessels and the surrounding tissues by the neoplasms strongly suggests malignancy, although of a mild nature.

Haller was the first to describe the carotid gland, a century and a half ago, but it was not until 1891 that Marchand[1] for the first time described a recognized tumor of this gland (Fig. 6). Marchand's patient was operated on by Riegner in 1880. Paltauf[2] later described

Fig. 7.—Case 9, Paltauf-Dittel. Section through specimen showing relation of tumor to blood vessels. C. I., carotis interna; C. E., carotis externa.

four other operations done in Vienna from 1886 to 1889.

I have been able to collect in all twenty-six cases which have been observed in the living and have added the full notes of one operation of my own, making twenty-seven cases in all. In all the twenty-seven cases, except Case 25, the patients were operated on. Besides that, there are two cases of such tumors found postmortem. Of these I have given a brief résumé, but I have not included them in any of the statistics in this paper. Up to this time, therefore, there have been in all twenty-nine cases of carotid tumor observed and reported from 1891 to 1906.

Fig. 8.—Case 4. Paltauf-Gersuny. Section through tumor showing relation of tumor to the vessels. C. I., carotis interna; C. E., carotis externa.

The increasing frequency of reports of such tumors shows that they are less rare than was originally supposed. Curiously enough, Drs. W. Joseph Hearn, J. Chalmers DaCosta and myself, the three clinical surgeons at the Jefferson Medical College Hospital, have each had a case within a period of two years. If we include the tumors designated by Mr. Hutchinson as "po-

1. Marchand: Virchow's Festschrift, 1891, vol. i.
2. Paltauf: Ziegler's Beitr. z. path. Anat. u. allg. Path., vol. xi, 1892.

tato tumors of the neck" among the tumors of the carotid gland, as seems to me proper, then the experience of Mr. Hutchinson, who stated that he had seen eight cases, further confirms the fact of their relative frequency. So far as I know, no colored drawing of such a tumor exists, and I am glad, therefore, to be able in my own case to show the gross appearances in color (Fig. 1). A fragment of the tumor in Hearn's case has also been preserved, showing the appearance (Fig. 2).

The carotid gland is known by other names, such as the intercarotid gland, the retrocarotid corpuscle. As has been shown by Dr. Funke,[3] it is an inconstant gland, varying in size from 4 to 7 cm. in length and situated at the bifurcation of the common carotid (Fig. 6). It lies a little posteriorly to the vessels and it is more intimately related to the internal than to the external carotid. It has a sheath with septa which penetrate into its interior. There arise also, usually from the common or

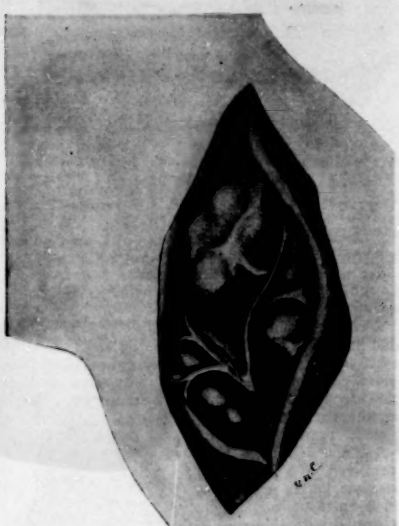


Fig. 9.—Case 6.—Kauffmann and Ruppanner v. Mikulics, showing the relation of the tumor to the carotid artery and jugular vein on section.

from the internal carotid, from one to several small vessels, either from the posterior surface of the common carotid, from the bifurcation or from the internal carotid. This vascular connection with the carotid sometimes gives the gland the appearance of having a small pedicle (Fig. 23).

None of the first seven reported cases was correctly diagnosticated. As a result of his observation and experience in his first case, Maydl in his second case (Case 8) made the first correct diagnosis. In my own case I did not make a correct diagnosis, though I was mentally, rather curiously uncertain as to just what kind of tumor it was. Should I see another case, I believe, I would be able to diagnosticate it correctly.

3. Funke: American Medicine, 1904, vol. viii, p. 109.

ETIOLOGY.

A number of possible causes have been mentioned, but they have rather been imaginative attempts, I think, to connect the rise of the tumor with some lesion or disease which is very unlikely to have been a cause.

Age.—The ages were as follows:

18 years	1 case.	46 to 50 years	5 cases.
21 to 25 years	3 cases.	51 to 55 years	3 cases.
26 to 30 years	3 cases.	56 to 60 years	2 cases.
31 to 35 years	6 cases.	62 years	1 case.
41 to 45 years	2 cases.	74 years	1 case.

Nearly one-half (13 of the 27), therefore, were *first seen* by the surgeon between 30 and 50 years of age. But the tumors had originated much earlier. If we take the ages when the tumor was first observed we find that they were as follows:

13 years	1 case.	41 to 45 years	4 cases.
16 to 20 years	3 cases.	46 to 50 years	2 cases.
21 to 25 years	3 cases.	51 to 55 years	1 case.
26 to 30 years	6 cases.	61 years	1 case.
31 to 35 years	3 cases.	73 years	1 case.
36 to 40 years	1 case.		

Therefore, 17 of the 27 cases were *first discovered* between the ages of 13 and 35, 7 between 36 and 50 and only 2 after 50 years of age.

There were fourteen males and thirteen females.

SIZE AND CONSISTENCE OF TUMOR.

The tumor has usually been noticed as a small lump in the neck about the size of an almond or a little larger, and when first seen by the surgeon has usually been from the size of a pigeon's egg to that of a goose egg, the most commonly mentioned size being the intermediate one of a hen's egg. This describes also, to some extent, its shape, as it is usually ovoidal. When operated on it is found sometimes to reach to the spine posteriorly. In several cases it produced bulging of the lateral wall of the pharynx internally, and in three cases it extended to the base of the skull. As a rule the surface is not lobulated, but is at least fairly smooth.

Fig. 10.—Case 8, Kopfstein-Maydl. Section of tumor showing relation of vessels to the tumor.

The consistence varies, but the tumor is usually moderately hard and elastic. In my own case it was so soft that I regarded it as lipoma. Occasionally in parts it will be hard in contrast to the general softness of other portions of the tumor.

CAPSULE AND COLOR.

As a rule there is a fairly well-defined capsule with septa dividing it into separate portions, without, however, as stated above, any marked lobulation as a result.

When reached on dissection the external appearance of the tumor in not a few cases recalls a goiter, so much so that in my own case during the operation I was half convinced that I had to deal with an ectopic goiter developed from an accessory thyroid. The color, the large

veins and very abundant hemorrhage were all in favor of this view, and I was not entirely decided as to its real character until I found that the relation of the tumor to the vessels was such as quickly to decide the diagnosis in favor of a carotid tumor.

On section the color varies very considerably; sometimes it is brown, brownish-red or bluish-brown; in Case 2, at least, it is stated to have been white in color. Moreover, the color is not always uniform on section, but varies in different parts. In a number of cases the appearance of the tumor on section suggests a spongy structure.

RELATION TO VESSELS.

As a rule, as the tumor grows it envelops the common carotid and its branches and often becomes so adherent to the jugular that resection of this vein is required. This very intimate connection with the vessels is confirmed by the fact that the common and internal or all three carotids had to be ligated in 18 out of the 27 cases, and the external carotid alone in 2 cases; while the jugular vein was tied in 13 cases, in 12 of which the carotids also were tied.

In eight cases the tumor was dissected from the vessels (in Case 20 by splitting the tumor) but the later history of these cases was not encouraging. In four cases (5, 7, 14, 24) recurrence took place. In two (Cases 13 and 17) there was no recurrence at least for four years, and in two (Cases 9 and 20) there was no later history. The four recurrences took place presumably from microscopic rests of the tumor, which, no matter how capable the surgeon is, must always be left behind.

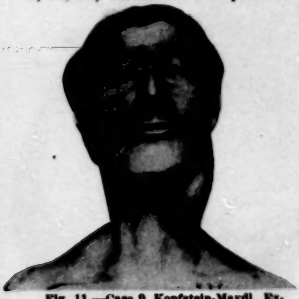


Fig. 11.—Case 9, Kopfstein-Maydl. External appearance of patient.

The relation to the vessels and the nerves and the vascularity of the tumor are perhaps the most important surgical considerations in connection with the treatment. In my own case the operation lasted for over an hour and a half, and I was obliged to apply not less than fifty or sixty ligatures. The same experience was reported in Da Costa's case (Case 26, not yet published in full), and again in the hands of so able a surgeon as von Mikulicz (Case 6). In his case (Fig. 9) the upper pole of the tumor reached to the base of the skull at the jugular foramen and had to be seized by hemostatic forceps *en masse*, this mass containing also the internal jugular vein, which could not be ligated separately.

In the 26 cases so far operated on there were seven deaths, a mortality of 27 per cent., or over one in four. The two principal causes of death were pneumonia from division of the vagus and cerebral disturbances from ligation of the common or internal carotid artery.

In estimating the danger from the operation of ligation of the common carotid, or, what is practically the same, of all three carotids, it would be very unfair to include the cases operated on in the pre-antiseptic era. We have at least two tables belonging to the aseptic era.

Zimmerman[4] collected 70 cases from 1885 to 1891, with a mortality of 31 per cent (22 deaths). Kranepuhl[5] collected 46 cases from 1893 to 1899, with 4 deaths, i. e., a mortality of 8.39 per cent., but there were symptoms of cerebral disturbance in 23.9 per cent. Dabrowski[6]

Fig. 12.—Case 9, Kopfstein-Maydl, showing the deep grooves in which the carotids were embedded, requiring the resection of all three.

has collected 22 cases of simultaneous ligation of the carotid and internal jugular, not all in the aseptic era, however, of which 9 patients suffered from cerebral

Fig. 13.—Case 11, Mönckeberg. Tumor on its antero-internal surface. A, carotis communis; B, carotis interna; C, carotis externa.

symptoms and 8 died, a mortality of 36.4 per cent. This simultaneous ligation of both vein and artery, as I have

4. Zimmerman: Inaug. Dissert., Heidelberg, 1892.

5. Kranepuhl: Dissert., Marburg, 1901.

6. Dabrowski: Centbl. f. Chir., 1895, p. 119.

shown, is unavoidable in about half of the operations for carotid tumors. Combining all these, we obtain 34 deaths in 138 cases, a mortality of 24.7 per cent., or practically one death in every 4 cases—a high mortality for modern operations.

It is clear, therefore, that ligation of the common carotid or all three (for the ligation of the external caro-

Fig. 14.—Case 11, Mönckeberg. Section of tumor showing relation of vessels. A, carotis communis; B, carotis interna; C, carotis externa.

tid adds little to the danger) is a very serious operation, even in our age of aseptic surgical success, and is one of the principal factors in the large mortality of these cases. If we add to this the division or resection of the pneumo-

Fig 15.—Case 12, Mönckeberg. Tumor from behind. A, carotis communis; B, carotis interna.

gastric with the marked tendency toward pneumonia which follows such an injury, and also take into consideration the fact that other nerves were involved in some of the cases in addition to the vessels, we can very easily account for the very high mortality.

RELATIONS TO NERVES AND LYMPHATIC GLANDS.

The marked tendency of tumors of the carotid gland not only to envelop the vessels, but also either to become very adherent to the important nerves of the neck or even to envelop them as they do the vessels, is shown by the fact that the pneumogastric nerve was resected in six cases (1, 6, 9, 10, 11, 23), the sympathetic in two cases, the hypoglossal (either resected or divided) in four cases and the lingual in two cases. In several, more than one of the nerves were resected or divided. In Marchand's and von Mikulicz's cases (Nos. 1 and 6) the division of the vague was not recognized during the operation, but was discovered at the postmortem. When we note that of the 7 deaths 4 were from inhalation pneumonia and one from acute edema of the lungs, the division of the vagus is seen probably to be even a greater danger than the ligation of the vessels.

In six cases the lymphatic glands were enlarged; in only one (Case 20) was the lymphatic gland normal. This enlargement would seem to indicate malignancy. In most of the cases no mention is made of any enlarged lymphatic glands.

SYMPTOMS.

The symptoms are chiefly negative; that is to say, except for the presence of a tumor, which is more or less

Fig. 16.—Case 12, Mönckeberg. Tumor on section. A, carotis communis; B, carotis interna; C, carotis externa.

of a disfigurement, there are seldom any other annoying symptoms. As a rule there is no pain, no dyspnea, no dysphagia, no changes in the pupil as a result of involvement of the sympathetic (though postoperative changes are noted in several cases), no cardiac symptoms from involvement of the pneumogastric, no cerebral symptoms from any involvement of the vessels.

As a rule the tumor grows slowly and may persist for a number of years before the patient seeks relief. Thus the tumor had existed prior to surgical consultation in one case for thirty-seven years, and in several others for from four to twenty years. In only three cases had it existed for less than one year.

On the other hand, though slowly growing, after it has thus gradually increased in size for some years, it may suddenly increase in size with great rapidity and become a serious deformity. Symptoms other than the deformity are often wanting. In the great majority of cases the patients have simply sought relief from this increasing deformity. There have been, however, in a very few cases some slight symptoms, such as headache, hoarseness and a narrowed pupil.

Among the physical signs the most important is the location of the tumor. It always arises at the bifurcation of the carotid, extends somewhat downward, but rather more upward, never to such a degree as to displace the auricle. It lies partly under the sternocleidomastoid, and for this reason its posterior boundary is rather ill-defined. As a rule it is movable to some extent laterally, but in consequence of its intimate relation with the carotids it can only be slightly displaced upward or downward. The skin is never discolored, nor is it adherent to the underlying tumor. Pulsation, of course, is felt in nearly all cases, but this pulsation is a transmitted pulsation directly from the artery through the substance of the tumor. There is no such expansile pulsation as is characteristic of an aneurism, though in Reclus' case (Case 20) a slight expansile pulsation was noted. In fact, in only one case was the diagnosis of aneurism even entertained. On auscultation in several cases a distinct bruit was heard and on applying the hand there was also a thrill. These are very easily accounted for by the mechanical condition existing, especially if the caliber of the vessels is at all affected. In no case has this caliber been obliterated. Pressure on the carotid below the tumor, of course, abolishes pulsation, bruit and thrill. In Reclus' case a curious phenomenon was observed, namely, that pressure reduced the volume of the tumor by about one-half, and when the pressure was removed the tumor regained its original volume, not by a continuous but by intermittent staccato enlargements, corresponding to the pulsation of the heart.

Fig. 17.—Case 13, von Heinleth, showing the relation of the tumor to the carotids like a meal sack thrown over the shoulder.

MALIGNANCY.

Tumors of the carotid body can be rather sharply differentiated into two groups, one which shows but little tendency to malignancy, at least in the early stages, in which there are no enlarged glands and no metastasis. In fact, it may be said that in general such tumors run a benign course in their early stages. Other cases, however, have shown a marked tendency to malignancy. So good a pathologist as Marchand in the very first case believed it to be malignant. In four cases recurrence took place, probably from microscopic rests which were not removed, and in one the patient died four years later from cancer of the ovary.

In addition to this it is to be noted that nine cases were reported so shortly after the operation that we can not draw the inference that they would have been free from recurrence if the case had been reported at a later date. In one case the patient died without an operation, but it was clearly malignant. In five cases there was involvement of the lymphatic glands. All of these had undergo a slow development, followed by a later much more rapid growth.

DIAGNOSIS.

Most commonly the tumor is thought to be a lymphoma or adenoma. Sometimes tuberculosis of the glands has been suspected. In my own case, prior to operation I thought it a fatty tumor, though I was by no means certain of the diagnosis. In a very few cases sarcoma or carcinoma has been suspected.

In Maydl's first case the diagnosis was lymphoma and the tumor was only discovered to be one of the carotid gland after operation. In his second and later cases he was able to make a correct diagnosis. In my own case I was quite in error, though I suspected I was in error at the time.

Fig. 18.—Case 17, Kauffmann and Ruppanner-Fritsche. External appearance of the tumor.

Fig. 19. — Case 18, Scudder, showing the three carotids and their relation to the tumor.

The *diagnosis* is based on positive and negative facts.

Fig. 20.—Case 20, Reclus, showing relation of tumor to the vessels.

The Positive Facts.—1. There is a tumor arising in the region of the bifurcation of the carotid; that is to say, about on a level with the upper border of the thyroid cartilage. It lies at first under the border of the sternocleidomastoid, but when it has reached any size it is only partly covered by this muscle. 2. The tumor is moderately movable horizontally, but not vertically. 3. It is usually ovoidal in shape. 4. As a rule it is rather

smooth and not lobulated. 5. It is a single tumor and not made up of a coalescence of several tumors, as in tuberculous glands. 6. There is transmitted but non-expansile pulsation. 7. There may be bruit and thrill, but this is rare and not marked. 8. It may cause bulging of the wall of the pharynx. 9. The pupil is occasionally contracted. 10. It will usually grow slowly at first, and, possibly, shortly before the surgeon sees it, more or less rapidly. 11. It will have existed for a number of years. 12. The consistence is neither very hard nor very soft, but elastic.

Fig. 21.—Case 25, Gifford and Davis. External appearance of tumor. Patient died without operation.

The Negative Facts.—1. There is no pain. 2. As a rule it is not tender. 3. There is no disturbance, as a rule, of the pneumogastric, either as to its cardiac or laryngeal functions. 4. There is no disturbance of the sympathetic nerve. 5. There is no change in the pupil, except occasionally. 6. So far as the patient is concerned, there are usually no subjective symptoms, but the aid of the surgeon is sought on account of a slowly or rapidly growing deformity, and if the tumor is growing rapidly there may be also fear of its results.

MORTALITY.

The results as to mortality have been as follows: Of 26 patients, 19 have recovered and 7 died. This gives an immediate mortality of 27 per cent. One patient died without operation. But to the 7 deaths as an immediate result of operation are to be added one a year later from recurrence and three other speedy deaths from recurrence in prospect. The causes of immediate death from operation have been: In Cases 1, 6, 11 and 23, pneumonia, in all of which the pneumogastric was divided or resected; in Case 3, hemorrhage; in Case 22, cerebral anemia; in Case 27, acute edema of the lungs.

Fig. 23. — Normal carotid gland (Funke). A, main artery; B, lobule; C, *Zellballen* of German writers (Zeiss obj. 2/3 in.; eye piece 1½ in.).

In addition to this mortality, however, other accidents have arisen in the patients who survived, to which Reclus and Chevassu especially call attention. In Cases 2, 12 and 26 the patients have had hemiplegia with aphasia. In three the voice has been affected and there has been more or less dysphagia. In one there has been such tracheal irritation as to produce a constant cough. In four the tongue has deviated to one side and the palate has been paralyzed. In two there was an altered pupil and there was no exophthalmos in one. In three cases the face has been partly paralyzed. In only seven cases (10, 13, 15, 17, 18, 19 and 20) has recovery occurred without any complication, or at least without any being mentioned.

Fig. 22.—Carotid gland from a 4.5 cm. human embryo (Paltauf) C. I., carotis interna; C. E., carotis externa.

In view, therefore, of the large death rate and of the serious and often disabling complications which have followed in a considerable number of those who have recovered, the question arises whether any operation ought to be done.

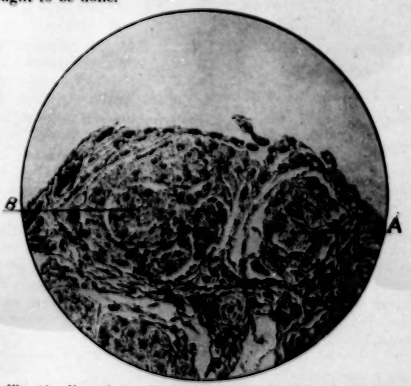


Fig. 24.—Normal carotid gland (Funke), showing part of a lobule. A and B cells constituting the *Zellballen* of German writers (Zeiss obj. 1/8 in.; eye piece 1¼ in.).

Reclus and Chevassu reach the following conclusions:

Every operation undertaken for tumor of the carotid body may require resection of the vessels and nerves of the neck. Interference should be undertaken, therefore, only when serious functional troubles or a rapid evolution of an apparently malignant character is present, thus justifying an attempt,

the consequence of which may be very grave. Apart from this we believe that the surgeon should not operate.

After my unfortunate experience in the case which I have related, and a careful study of all the recorded cases, I entirely agree with these conclusions. The symptoms and inconveniences of a tumor of the carotid body are generally so slight that I do not think any patient who is not suffering seriously or whose tumor does not exhibit symptoms of malignancy or of rapid growth should be subjected to the grave dangers which such an operation may involve. Surely no prudent surgeon would be willing to cause his patient to face such dangers simply for cosmetic purposes.

If, on the other hand, the tumor is growing rapidly and presents a malignant appearance, then I believe operation is justified, but not otherwise.

CASE SUMMARIES.

The following cases I have found reported in the literature:

CASE 1.—Marchand.[1] A woman, aged 32, had a right-sided tumor the size of a hen's egg for four and one-half years. A diagnosis of lymphoma was made and she was operated on by Riegner in 1880. The three carotids and the jugular were ligated. The patient died on the third day. Division also of the vagus, hypoglossal and sympathetic was discovered at necropsy. Death resulted from bronchopneumonia, probably from section of the vagus. The tumor completely surrounded the vessels at the bifurcation. The internal carotid was compressed and thrombosed with two excrescences into the caliber. Size of specimen, 5.5x3.8x3.5 cm. (Fig. 6).

CASE 2.—Paltauf.[2] A man, aged 28, had a tumor the size of a pigeon's egg on the left side, for six months. A diagnosis of lymphoma was made and later of aneurism; operation was done by Maydl in 1886. The three carotids, the superior thyroid and the ascending pharyngeal were ligated. Hemiplegia, paralysis of right hypoglossal and facial and aphasia occurred on the fifth day. All symptoms gradually faded; the aphasia very slowly. There was no recurrence for four years. The tumor almost completely surrounded the vessels at the bifurcation. From the common carotid there was an arterial pedicle over 1 mm. in diameter to tumor.

CASE 3.—Paltauf.[2] A man, aged 32, had a tumor on the right side the size of a hen's egg, for some months. In the last few weeks there was rapid growth; operation was performed by Dittel in 1886. (Fig. 7). The tumor completely surrounded the vessels at the bifurcation. The three carotids and the jugular were ligated. An enlarged gland below the tumor was also removed. Death occurred a few hours later from colossal secondary hemorrhage. The walls of the vessels were thinned. There were two arteries from the internal carotid to the tumor. Size of specimen, 6x4 cm.

CASE 4.—Paultauf.[2] A woman, aged 18, had a tumor the size of a hen's egg on the left side. A diagnosis of tuberculous gland was made and she was operated on by Gersuny in 1886. (Fig. 8). The three carotids were ligated. The tumor surrounded the vessels at bifurcation; its section was white. There was postoperative slight paresis of the left vocal cord. There was no return after four years.

CASE 5.—Paltauf.[2] A man, aged 35, had a tumor the size of an apple on the right side. There was rapid growth during the last year. He was operated on by Albert in 1889. The external carotid was the only vessel tied, the others were dissected from grooves in the tumor. There was recurrence a year later, with a second extirpation. No microscopic examination was made of the second tumor and the later history of the case is not known. Size of specimen, 6 cm. long; 9 cm. in circumference.

CASE 6.—Kauffmann and Ruppanner.[7] A woman, aged 20, had a tumor on the left side the size of a child's fist, for seven years. Two years earlier an attempt at removal was made by another surgeon, but relinquished on account of hemorrhage. Thrill was perceptible on auscultation and there was a bruit. Pressure reduced the size one-half. It bulged in the lateral wall of the pharynx. Operation was performed by Mikulicz in 1891. The common and internal carotid and the jugular were ligated. The hypoglossal was divided. The upper pole of the tumor reached to the base of the skull at the jugular foramen. The upper tip of the tumor had to be left behind in the grasp of hemostatic forceps. In this tip were included the upper end of the internal jugular and the lower end of the internal carotid. Death occurred on the second day. After operation there was hoarseness and the left pupil was small and did not react. The tongue deviated to the left. Death was caused by double inhalation pneumonia. The vagus was found to be divided. The vessels were surrounded by the tumor. (Fig. 9).

CASE 7.—Kretschmar.[8] A man, aged 48, had a left-sided tumor the size of a hen's egg for a year. A diagnosis was made of branchiogenous carcinoma. The man was operated on in the Giessen surgical clinic in 1892. The superior thyroid and lingual arteries and the external jugular vein were ligated. Postoperative paralysis of left vocal cord occurred, with whispered speech. The left vocal cord was in the cadaveric position. Recurrence took place about four months after operation. Eight months after the first operation, an attempt was made to remove the recurrent tumor, but it proved to be inoperable. Some enlarged lymphatic glands only were removed. Fourteen months after the first operation the patient was still alive.

CASE 8.—Kopfstein.[9] A man, aged 46, had a small tumor on the left side for sixteen years, gradually increasing in size to that of a hen's egg. A diagnosis was made of carotid tumor. This was Maydl's second case; he operated in 1893. The three carotids, the ascending pharyngeal arteries and the jugular vein were ligated. Many ligatures were required toward the anterior face of the vertebræ where the tumor was very adherent. There was postoperative dilatation of the right pupil. There was no recurrence in six months. (Fig. 10). Size of specimen, 6x4x2.5 cm.

CASE 9.—Kopfstein.[9] A man, aged 34, had a tumor on the left side for four years. For a short time there was hardness of hearing and noises in the ears. The tumor was coarsely lobulated. At the lower pole there was an enlarged lymphatic gland. There was a systolic murmur. He was operated on by Maydl in 1895. The three carotids, superior thyroid, lingual, external maxillary and ascending pharyngeal arteries and the jugular vein were ligated. The sympathetic, vagus, and hypoglossal nerves were resected. The operation was very difficult (two hours) because the superior pole reached to the base of the skull. The gland was infiltrated by the tumor. Recovery took place with narrowing of the left interpalpebral fissure and pupil with exophthalmos. The tongue and uvula deviated to the left, and there was paralysis of the left half of the palate. There was also insensibility of the left side of the larynx; the left vocal cord was immobile in the cadaveric position, and the voice was hoarse and nasal. Tracheal irritation caused frequent cough. Deglutition of liquids was easy, of bread and meat difficult. Hearing was normal. Noises in the ears had disappeared. (Figs. 11 and 12). Size of specimen, 7.5x5 cm.

CASE 10.—Malinowsky.[10] A woman, aged 30, had a tumor on the right side for ten years. Latterly the growth was rapid. There was perceptible vibration to the hand. By auscultation a murmur could be heard. At operation (1895) the three carotids, the superior thyroid, external maxillary and superior laryngeal arteries and the jugular vein were ligated. The vagus was resected. Recovery took place. The vessels were entirely surrounded by the tumor.

CASE 11.—Mönckeberg.[11] A man, aged 52, had a tumor on the left side for from two to three years. Growth was rapid until it reached the size of a hen's egg. There was tenderness for several weeks. The man was operated on in the Giessen surgical clinic in 1895. The common and internal carotids

7. Kaufmann and Ruppanner: Deutsche Zeitft. f. Chir., vol. lxxx, p. 259.

8. Kretschmar: Dissert., Giessen, 1893.
9. Kopfstein: Wien. klin. Rundschau, 1895, Nos. 22 and 23.
10. Malinowsky: Kiew, 1899 (from Reclus and Chevassu).
11. Möckeberg: Ziegler's Beitr. z. path. Anat. u. allg. Path., 1905, vol. xxxvii.

and the internal jugular vein were ligated with resection of the vagus and section of the hypoglossal nerve. Death occurred after three days following a right hemiplegia, aphasia, unconsciousness and inhalation pneumonia. The tumor surrounded the vessels. (Figs. 13 and 14.) Size of specimen, 6.5x5.5x4.5 cm.

During manipulation of the vagus, the pulse fell to about 40; after resection it rose to 130-40, and during the remainder of the operation returned to about 95.

CASE 12.—Mönckeberg.[11] A woman, aged 30, had a left-sided tumor the size of a hen's egg for eighteen months. She was operated on in the surgical clinic in Giessen in 1895. The three carotids were ligated. Recovery took place and there was no recurrence for four years. Operation was followed by right-sided facial paralysis. On the second day right hemiplegia with aphasia occurred. Recovery was gradual. Four years after the operation the woman had an inoperable ovarian tumor. Death occurred two days after an exploratory abdominal section. The ovarian tumor was a papillary adenosarcoma. The carotid tumor surrounded the external carotid. (Figs. 15 and 16). Size of specimen, 4.5x4x4.5 cm.

CASE 13.—von Heinleth.[12] A woman, aged 60, had a left-sided tumor for thirty-seven years. It was said to have appeared after extraction of a tooth and fracture of the alveolar process in 1859. At the extraction of the last of eleven teeth there was sudden, violent pain on the left side, which had never disappeared. The tumor measured 8x5x3.6 cm., and crossed the bifurcation like a meal sack over the shoulder. (Fig. 17). The surface was smooth. There were no stethoscopic signs. At the inferior pole there was an enlarged gland. A diagnosis was made of carotid tumor of malignant character and the woman was operated on in 1896. None of the vessels were ligated nor were any of the nerves wounded, though the internal jugular was very adherent to the tumor. The carotids were laid bare for 11 cm. The tumor was very vascular, like a goiter. Recovery took place and there was no recurrence after four years.[13]

CASE 14.—Middleton and Bierring.[14] A man, aged 43, noted "kernels" on both sides of his neck which he attributed to a cold early in 1895. They subsided on the left side, but a swelling persisted on the right side and gradually increased. He consented to operation in September, 1895. The external carotid was ligated. Hoarseness and dysphagia were marked prior to operation; after operation there was paralysis of the palate, producing occasional regurgitation of liquids through the nose. Recurrence took place in November, not only *in situ*, but also on the left side at the same level. Death occurred from exhaustion about the end of the year. No autopsy was obtainable.

There was a more or less well defined connective capsule. The tumor was oval, lobulated, 4.5x3.5 cm. On section it was found to be of medium soft consistency, resembling a carcinomatous lymphatic metastasis. The facts were submitted to Prof. Paltauf by Dr. Bierring and his judgment was that it was a tumor of the carotid gland.*

CASE 15.—Mönckeberg.[11] A woman, aged 50, had a left-sided tumor for three years. In the last six months there was rapid growth; the tumor caused pain and was the size of a pigeon's egg. She was operated on in the Giessen surgical clinic in 1898. The three carotids and superior thyroid arteries were ligated. The nerves were not involved. Recovery ensued. The vessels were surrounded by the tumor. Size of specimen, 6.5x4.5x4.5 cm.

CASE 16.—Siniouschine.[15] A woman, aged 41, had a left-sided tumor for eight years. It was attributed to a laryngitis. During the last three years there was more rapid growth, with pain in the teeth and right ear, and dysphagia. She was operated on in 1900. The three carotids were ligated. Dissection from the jugular from the posterior face of tumor was difficult. On the following day the tongue deviated to the left and there was drooping of the right angle of the mouth. Recovery took place. The internal carotid was completely surrounded by the tumor. Size of specimen, 4x6 cm.

CASE 17.—Kauffmann and Ruppanner.[17] A woman, aged 21, had a left-sided tumor for two and one-half years. The tumor was the size of a goose egg and had a smooth surface. Diagnosis, lymphoma or ectopic goiter (Fig. 18). Operation was performed by Fritsche in 1902. None of the vessels or nerves was injured. Recovery ensued. There was no recurrence in four years. Four years after the operation a tuberculous lymphoma was removed from the right side of the neck. Size of specimen, 10x4x2.5 cm.

CASE 18.—Scudder.[16] A woman, aged 32, had a right-sided tumor for over nine years. It had grown slowly, was tender when she had a cold, and was the size of a pigeon's egg. She was operated on in 1902. The tumor was very vascular and it was necessary to ligate all three carotids (Fig. 19). Recovery ensued and there was no recurrence after 4 years. (Personal communication.)

CASE 19.—Cuneo and Dainville.[17] A woman, aged 23, had a right-sided tumor for 3½ years. Lancinating pains radiated toward the ear and the base of the neck; no dysphagia was experienced but there was discomfort and dragging when eating. For four months this discomfort and pain had increased and deglutition became difficult. There was no dyspnea except on running. The tumor was the size of a double fist, somewhat oval, and reached from the ear to the clavicle. The skin was normal in color and there were no adhesions. There was some paresis of the ocular and oral branches of the right facial. The right pupil was contracted and reacted to light less rapidly than the left. There was slight nystagmus, especially right. She was operated on in 1903. No artery or nerve was injured nor did the internal jugular require ligation. Enucleation of the tumor was moderately easy. The upper pole of the tumor reached to the posterior lacerated foramen. Recovery ensued. The troubles resulting from compression of the nerve gradually diminished. The authors believe that it belonged to the fibromata and arose from the carotid body.

CASE 20.—Reclus and Chevassu.[18] A woman, aged 49, had a left-sided tumor for five years, also a sarcoma of the left breast. There was bulging of the lateral wall of the pharynx. She was operated on by Reclus in 1903. Section of tumor was done in order to dissect out the internal carotid. Two glands at the upper pole were removed. Recovery ensued. The lower branches of the facial nerve were paralyzed. The tongue deviated to the right. The glands were normal. Size of specimen, 4.5x3.5x2.5 cm. (Fig. 20).

CASE 21.—Macphatter.[19] A woman, aged 31, had a left-sided tumor for 6 years. Latterly it had increased rapidly in size with considerable pain and an uncomfortable sensation at times. There was non-expansile pulsation. She was operated on September (1902?). The three carotid arteries and the internal jugular vein were ligated. Recovery ensued. There was no cerebral disturbance.

CASE 22.—Funke.[1] A man, aged 48, had a right-sided tumor of 6 years. He was operated on at Jefferson Medical College Hospital, by Hearn, in May, 1903. There was profuse hemorrhage. The three carotid arteries and the internal jugular vein were ligated (Fig. 2). For several days after operation there was whispered voice. The man left the hospital on the eighth day. Soon after he had headache, became irrational and suffered rapid loss of flesh. Death occurred from cerebral hemorrhage 9 weeks after leaving the hospital. No nerves were injured. Size of specimen, 5x3.3 cm.

12. von Heinleth: Münch. med. Wochft., June 26, 1900, p. 899; also Centbl. f. Allg. Path. u. Path. Anat., 1900, vol. xi, p. 599.

13. Kauffmann and Ruppanner, p. 302, state that the case in Leithoff's Würzburg Dissertation, 1904, is a second tumor removed by von Heinleth. This is an error, as is shown on comparing the paper of von Heinleth and that of Leithoff.

14. Middleton and Bierring: Trans. Iowa State Med. S., 1897, vol. xv, p. 94.

15. Siniouschine: Soc. de Chir. de Moscow, 1901 (from Reclus and Chevassu).

* The authors had intended to make a full report of this case, but a fire at the University of Iowa destroyed the tumor, slides and drawings; in other words all the material except the brief mention in the Transactions of the Iowa State Medical Society containing a few facts in reference to it, and a pathologic report by Dr. Bierring.

16. Scudder: Amer. Jour. Med. Sciences, September, 1903.

17. Cuneo and Dainville: Bull. et Mém. Soc. Anat., 1903, vol. lxxviii, p. 592.

18. Reclus and Chevassu: Rev. de Chir., 1903, vol. xxviii, p. 157.

19. Macphatter: New York and Phila. Med. Jour., July 25, 1903.

CASE 23.—Gilford and Davis.[20] A man, aged 62, had a left-sided tumor of 6 months growth, the last two weeks' growth being very rapid. His appetite was poor and the man was wasting and weakening. There was no glandular involvement. He was operated on in 1904. The three carotid arteries were ligated. The vagus and descendens noni and the internal jugular vein were resected. Soon after recovery from the anesthetic, hemiplegia and double pneumonia ensued. Death occurred on the seventh day. No postmortem was allowed. The tumor surrounded the internal jugular vein and occluded it. The carotids were pressed on, but not occluded by the growth.

CASE 24.—Gilford and Davis.[20] A man, aged 52, had a left-sided tumor for 3 months, increasing slowly in size. There were no other symptoms; no enlarged glands. He was operated on in 1904. The tumor was dissected from the carotid arteries and 3 cm. of the internal jugular were removed. There was local recurrence six weeks later, which within two months had extended from the mastoid nearly to the clavicle. The patient died five months after the operation.

CASE 25.—Gilford and Davis.[20] A man, aged 74, had a left-sided tumor for over a year. The tumor was nodular and of stony hardness (Fig. 21). There were no enlarged glands, but the liver was enlarged to 3 cm. below the margin of the ribs. No operation was done, the patient died 18 months after the first appearance of the growth. At postmortem metastases were found in the liver.

CASE 26.—DaCosta.† A man, aged 52, had had a right-sided tumor the size of a pigeon's egg for 20 years. During the last six months it had begun to grow rapidly and was the size of a hen's egg when it was seen. It was firm but not hard. The anterior margin was lifted with each beat of the artery; the rest of the tumor was not lifted. The man was operated on in 1906. Very great hemorrhage occurred and about 50 ligatures were used. The three carotids and the internal jugular vein were tied. The nerves were uninjured. The tumor reached almost to the base of the skull. Twelve hours after operation, hemiplegia of the left side occurred which rapidly cleared up in a few days. A week later a second hemiplegia (embolic in internal capsule) occurred which is slowly clearing up (June, 1906). A few days after operation atelectasis of the left lung developed from unknown cause; over one-half of the lung collapsed. It slowly but finally expanded. Recovery ensued.

CASE 27.—Case reported in this paper by Keen, 1906.

CASES DISCOVERED POSTMORTEM.

In addition to the above-mentioned cases, the following were found at postmortems:

CASE 28.—Hedinger,[21] in 1904, accidentally discovered a tumor on the right side in a woman of 62. Size of specimen, 3x1.5 x1.5 cm.

CASE 29.—Oberndorfer,[22] in 1905, discovered a tumor on the right side in a woman of 58 who had suffered from severe progressive osteomalacia. The vessels were not involved in the tumor except by lying in grooves on its surface. Microscopic examination showed the tumor to be one of the carotid gland.

(To be concluded.)

CONGENITAL CYSTIC KIDNEY.*

Medical Association, at the Fifty-seventh Annual Session, June, 1906.

F. B. LUND, M.D.

BOSTON.

Congenital cystic disease of the kidney is a rare affection and one which so far appears to have interested the pathologists far more than clinical observers. The pathology of the disease presents an abundance of controversial literature, for the reason, perhaps, that the condition has been hard to explain and has afforded abundant opportunity for discussion and theorizing, but we, as practitioners of surgery, must not forget that the disease is of eminent practical and surgical importance, and that, although we may not meet with it on the operating table many times in a long surgical career, it is well worth while, when those times come, to be prepared by a previous consideration of its clinical history, prognosis and surgical treatment.

It is a disease which frequently runs its course without a diagnosis being made during life, death occurring from uremia or cerebral hemorrhage, due to kidney insufficiency. The real cause of the insufficiency is first discovered at the autopsy, when the enlarged cystic kidneys, not felt during life, are found by the pathologist. In fact, the course of the disease may be so latent that a patient in whom pathologic changes have not been suspected may be stricken with uremia or cerebral hemorrhage.

Strange to say, these cases come more often during life under the observation of the surgeon and obstetrician than of the medical man, for the reason that the symptoms which attract notice are more frequently those due to the size of the tumor than to the renal insufficiency. As is well known, cystic kidneys in the newborn are frequently so enlarged that the abdomen of the child is enormously distended. Normal parturition becomes impossible, version is generally attempted, the limbs are pulled off and it is often necessary to open the abdomen of the fetus and remove the enormous kidneys before the body and head of the child can be delivered. With this class of cases, except to allude to their important bearing on the etiology and pathology of the disease, I do not intend to deal.

It is the cases in which gradual enlargement of a polycystic character takes place later in life, and which present themselves to the surgeon on account of dragging pain and the presence of a tumor in the loin, or possibly on account of mobility of the enlarged kidney, that I wish to consider. Such tumors may suggest malignant disease of the kidney or hydronephrosis, and it is frequently only when they are cut down on that their true nature is revealed, and the importance of a knowledge of their nature and treatment becomes evident. Such kidneys have not infrequently been removed, with the result that the patients have died of uremia, and the autopsy has revealed the presence of cystic disease of the other kidney, usually less advanced, so that a tumor was not felt before operation. A knowledge of the fact that this disease is usually bilateral might have saved the patient's life and the surgeon's discomfiture. Again, the superficial resemblance of polycystic kidneys to sarcoma has been an additional reason for the performance of nephrectomy, which has sometimes been fatal and sometimes not, the issue depending more on good fortune than surgical skill. A slight familiarity with the pathologic condition should ordinarily suffice to prevent such a mistake, and a brief consideration of the pathology and etiology becomes important.

ETIOLOGY AND PATHOLOGY.

The term congenital cystic kidney does not include hydronephrosis, which is a dilatation primarily of the pelvis and sinus of the kidney from retention due to obstruction in the pelvis itself or the ureter, and does not concern the urinary tubules at all. It does not include cystic dilatation of the tubules due to the contraction of the interstitial tissue, which sometimes accompanies a chronic interstitial nephritis. Here the kidney cortex becomes studded with little cysts, seldom larger than a

† To be reported in the Annals of Surgery, September, 1906.

20. Gilford and Davis: The Practitioner, December, 1904, p. 729.
21. Hedinger: Corr-bl. f. Schweizer Aerzte, No. 8, 1905.
22. Oberndorfer: Centbl. f. allg. Path. u. path. Anat., 1905, vol. xvi, 1905.

* Read in the Section on Surgery and Anatomy of the American Medical Association, at the Fifty-seventh Annual Session, June, 1906.

pea, and not, as in the true congenital cystic kidney, greatly enlarged and varying in size. The cyst in interstitial nephritis play only a subordinate rôle and are secondary to scar contraction. Neither does the subject under discussion include the single or occasionally multiple cortical cysts which sometimes result from the absorption of embolic infarcts. In the true cystic kidney the kidneys may be enormously enlarged, e. g., the cases in which they present an obstacle to parturition, or in adults occupy half or two-thirds of the abdominal cavity. The whole organ, both cortex and medulla, is studded with cysts of various sizes, from that of a pinhead to that of a mandarin orange (Fig. 1). The surface is

Fig. 1.—Cystic kidney removed at autopsy from a patient of Dr. H. T. Baldwin. The man died at 42 years, of uremia. Both kidneys were equally involved and caused a large abdominal tumor. The patient's mother suffered from the same condition.

knobby with cysts of different size and color, brown, red, green, translucent, like windows bossed with vari-colored glass, making a pathologic specimen of truly remarkable and imposing appearance. The walls of the cysts are thin, vascular, and the larger ones show folds on their inner surface, which are the remains of the walls of the smaller cysts, which have coalesced to form them. The fluid consists of urine, since in it are found urinary constituents, such as uric acid and hippuric acid, calcic oxalate, cystin, leucin and tyrosin, but in the larger cysts this fluid is considerably diluted (probably by serum which has transuded through the walls), albuminous, and contains blood, pigment, fat and cholesterin in varying quantities, so that the color of the cysts may be red, brown or yellow, and the fluid in them more or less cloudy. Between the cysts are often found more or less extensive areas of normal renal parenchyma; other cysts are separated merely by fibrous tissue. In some cases, with large amounts of parenchymal tissue, we can not distinguish between cortex and medulla.

The efferent passages, which protrude into the calices or pelvis, frequently show no changes, but in some specimens are shrunken, narrowed, and may be almost obliterated. Thin-walled cysts may sometimes be seen projecting into the pelvis, just as they do on the outer surface of the kidney. Microscopically, each cyst is lined with a single layer of flat epithelial cells, which in the smaller cysts correspond closely to a tunica propria. In the larger cysts this is not found, either because they have no proper wall or because the cysts appear as dilatations in the interstitial tissue. The partitions between the cysts are so thin as to make it probable that the larger cysts have been formed by the coalescence of smaller ones. In some of the smaller cysts glomeruli have been found attached to the walls, flattened, but still permeable to injected fluid (Figs. 2 and 3). It is thus evident that all portions of the tubular tract, from the glomeruli to the terminations in the papillæ, are subject to cystic dilatation. The suggestion of certain investigators that they might arise by cystic degeneration of the interstitial tissue is not supported by recorded observations. That certain of the cysts show no epithelial lining is due to the fact that the epithelium is desquamated and disappears. In the smaller or younger cysts the epithelium is always found.

Cystic kidneys in adults and in the new-born are usually bilateral. If, as is rarely the case, the disease is unilateral, the other kidney is hypertrophied. To the obstetric importance of this disease we have alluded above. Even earlier than this the degeneration of the kidney may have an unfavorable influence on the development of the fetus, so that birth is premature. The child may die within a few moments of birth from respiratory failure, due to the interference with the movements of the diaphragm consequent on the tumor, or may live a few days, only to succumb to the same cause. Death may result early in these cases from renal insufficiency, the amount of normal functionating renal tissue between the cysts being insufficient for excretory purposes. On the other hand, the amount of normal renal tissue may be sufficient to prolong life for indefinite periods, perhaps for decades, before renal insufficiency results in death. The most favorable conditions will naturally be presented by unilateral cases with compensatory hypertrophy of the opposite kidney, which are unfortunately rare.

In considering the etiology of this disease we enter a field which has been fruitful of much wordy discussion. The theory of Neuwerck, Hufschmidt and von Kahlden that these tumors are cyst-adenomata is negatived, it seems to me, by the fact that the cysts may often be demonstrated to be dilatations of the renal tubules, and contain urine, often diluted with serum, it is true, but showing distinct urinary constituents. The epithelial proliferations and connective tissue growths, which Brigidi and Severi had relied on as evidence of tumor growth or adenoma, have been shown by von Mutach to be tissues characteristic of embryonal kidneys. The presence of these proliferations, etc., therefore, is an argument in favor of the developmental rather than the neoplastic origin of the tumors. In order to explain these

cases we have to assume, with Orth and others, the existence of some obstruction to the escape of urine from the dilated and cystic canals. The oldest theory, that of Virchow, that the urinary concretions, "uric acid infarcts," so common in the new-born, have plugged the canals, is untenable, since these are rare during intrauterine life, and after birth so common that cystic kidneys, if due to them, ought to be much more frequent than they are. There seems to be no doubt, and that Virchow himself acknowledged later, that we must assume an organic obstruction and actual obliteration of the tubules. Orth agrees with Virchow's later view that the condition results from a fetal inflammation, involving the papillæ, with resulting obliteration. He says that the papillary atresia can not be attributed to a congenital narrowing, because certain embryologic investigations have shown that the tubules are developed from the Wolffian ducts and do not develop separately from them and afterward unite with them. The fact that we find cysts in all parts of the kidney, including the papillæ, does not, however, make it necessary to assume that the obstruction must be located in the papillæ. The cysts of the upper tubules might extend into the papillary tract and displace the straight tubules and project into the pelvis.

In favor of the theory that the condition is a developmental malformation is the fact that other congenital malformations frequently coexist. The presence of congenital cystic liver in association with cystic kidney, which occurs in 19 per cent. of the cases (Moscowitz), is also significant of the embryonal origin of the condition. The cysts of the liver are ascribed by Moscowitz[1] as due to the obstruction of afferent intra-acinar bile ducts, and are evidence also of congenital origin. Other anomalies which have been found associated with cystic kidney are hypospadias, atresia and absence of ureter, vagina, bladder, etc., also hare-lip, spina bifida or absence of extremities. There is now pretty general agreement among investigators that the condition is due to defect in development, which is explained something as follows: The tubular structure of the kidney, including the glomeruli, the convoluted tubules, the loops of Henle and the straight tubules, to a considerable extent, originate by a development of tubules in the mesoderm of the embryo. The ureter, kidney, pelvis and an uncertain amount of the straight tubules in the pyramids develop from a tubular process which originates from the Wolffian duct. The straight tubules grow out and meet the primitive vesicle, which becomes the glomerulus, and then later from this glomerulus the convoluted tubules and Henle's loops are developed (Brödel). In case this tubule growing from the Wolffian duct fails to connect with the primitive glomerular vesicle, an obstruction occurs, resulting in cystic dilatation of the entire tubular system above the straight tubules. The extent of the process will depend on the relative number of tubules that fail to meet. If a large proportion fail to connect, then the cystic formation will be rapid and complete, and, no kidney tissue being left to eliminate urine, the patient will die. If, on the other hand, there be left comparatively large areas of healthy kidney tissue, enough for the elimination of uric acid, the patient may live for years and die from other causes. The presence of the increasing cystic tissue may finally so squeeze the intervening healthy tissue as to cause insufficiency, and the patient dies from this. This theory seems adequate to explain the facts as observed, and to be in every way more probable than that fetal nephritis involves the papillæ.

1. Am. Jour. Med. Sci., April 1, 1906.

Bunting,[2] in a recent article based on a careful microscopic study of specimens from two cases, found that in these cases the urinary path could be opened from the glomeruli through to the pelvis of the kidney, and, therefore, added no evidence in support of the obstruction theory or a failure of two sets of tubules to join with each other. He believes the primary cause of the trouble is the epithelial hyperplasia, which, so to speak, forces out the walls of the tubules. This theory does not satisfactorily explain, however, why we get cystic forms instead of epithelial growths, and needs further confirmation. Whatever theory of cystic kidney be adopted, we can not help concluding that it is a developmental condition, a malformation rather than a new growth. A fact that speaks strongly for the malformation origin is the occasional occurrence in several generations of the same family, showing a tendency to inheritance, as in the case illustrated by Fig. 1.

Cystic kidney has oftenest been observed in the middle decades of life, but cases have been reported in the first and second decades as well. In the adult the pathology corresponds in every way with that of the new-

Fig. 2.—Case 3. Section of cystic kidney removed at operation, showing normal kidney tissue between the dilated or cystic tubules. In the upper part of the picture a flattened glomerulus can be seen.

born, except that the individual cysts are larger, as are also the entire kidneys. It becomes evident, therefore, that if our explanation is correct we must assume that in case of cystic kidney in the adult the condition has existed since birth, but has not until later years given rise to symptoms which attract attention.

SYMPTOMS AND DIAGNOSIS.

If our views of the etiology and pathology of the disease as given above are correct, they will furnish us an adequate explanation of the somewhat remarkable symptomatology and course of the disease. The most thorough and careful description of the course and symptoms which I have found is that of Milward of Birmingham, who divides the clinical history of the disease into three stages:

1. The stage of progressive enlargement of one or both

2. Jour. of Exp. Med., March 26, 1906.

kidneys without subjective symptoms. The renal enlargement is discovered, if at all, by accident. This stage may last from a few months to several years.

2. The stage of subjective symptoms and objective signs. This stage lasts from a few months to six or eight years, or even longer. The signs and symptoms are dependent on the size and weight of the tumors.

3. The stage of decreasing elimination of urine. In this stage appear the symptoms of uremia, or cerebral complications. It lasts two or three weeks or a few months.

Males and females are affected in about equal numbers. The disease usually terminates fatally in the fourth, fifth or sixth decade. Renal enlargement is rarely discovered before adolescence, and when the disease develops in infancy the child hardly ever lives till the tenth year, so that the disease has been rarely reported between the tenth and thirtieth years.

The symptoms noted during the second stage are a dull, aching pain in the region of the kidneys during both night and day, but usually worse in the daytime, especially if the kidney is movable. A large part of the

Fig. 3.—Cross section of the same specimen as Figure 2.

pain, especially in the later stages, seems to be due to mobility of the kidney. There is tenderness on palpation or pressure, and occasionally the pain may be paroxysmal and very severe, with resulting prostration. Since many of the kidneys examined postmortem or removed at operation present cysts filled with blood under high pressure, it is reasonable to suppose that some of the pain may be due to hemorrhages into the cysts. Occasionally suppuration has taken place in one or more of the cysts and has required operation. Flatulence, headache, dyspepsia, vomiting, anorexia and constipation are frequently concomitant symptoms. It is an important and somewhat interesting fact that the examination of the urine often throws very little light on the diagnosis, a circumstance which contributes greatly to the difficulty of the latter.

During the second stage, and until the deformation is far advanced, the kidneys are capable of continuing their functions almost perfectly. The specific gravity is usually low, below 110, and the amount passed is usually slightly increased, but may be diminished. There is usually only a slight trace of albumin, and often albumin is entirely absent. In the second stage it is never present in large quantities, except when there is a great deal of blood. Casts are practically always absent; leucocytes are common and often occur in large numbers. Pus may be present in acid urine. Blood is usually present in traces, and when there is hemorrhage into the cysts may be poured out in such large quantities as to constitute attacks of hematuria. Bleeding may occur every few months or once a year, or may never be sufficient to tinge the urine. Some blood, however, is always present, and its presence is significant (Milward).

The elimination of uvea may amount to from 250 to 350 grains until late in the second stage, and it is not infrequent when death occurs suddenly, as it often does in the third stage, for the physician after death to find, to his surprise, the large cystic kidneys.

The symptoms of the third stage are those of uremia or some allied complication, such as cerebral hemorrhage, due to arteriosclerosis, and consist of headache, dyspnea, drowsiness, convulsions, paralysis and coma.

Duration of the Disease.—Ritchie,[3] reporting on eighty-eight cases, found that in seventy-five the average age was 45.3.

Duration of Symptoms.—In the majority of cases the symptoms last from a few months to five or six years. Twenty-two and nineteen years respectively was the duration of symptoms in the longest cases noted.

Of seventy-eight cases in which the symptoms were analyzed, thirty had renal symptoms apart from albuminuria, twenty having pains in the loins and abdomen. Sixteen had hematuria at some time. Seven had no kidney trouble and no evidence of illness, but cystic kidneys were found postmortem. Eleven suffered or had suffered from edema; in ten the absence of edema was stated. In thirty-three the urine contained albumin, in nineteen a trace and in eleven a considerable quantity. Vomiting or intestinal symptoms, constipation or diarrhea were present in nineteen cases. Twenty showed anemia, cachexia or loss of flesh. Thirteen had dyspnea or some pulmonary affection. In twenty-one a tumor was discovered during life in one or both flanks.

A brief review of the literature will show us that these cases which come under the surgeon's care present themselves during the second stage for pain in the side, due either to the weight or mobility of the tumor; the surgeon, finding the tumor, operates, and if it is large and malignant looking not infrequently removes it. The patient lives or dies, according to the presence or absence in the other kidney of sufficient healthy tissue to attend to the elimination of urea.

TREATMENT.

Numerous operators have removed congenital cystic kidneys successfully, among them may be mentioned the following:

Bevan[4] performed a successful nephrectomy for hematuria and secondary anemia in a case of cystic kidney, with recovery.

Syms,[4] operating for floating kidney, found a cystic kidney, which he removed and the patient recovered.

Krönlein[5] removed a large cystic kidney in a patient three months pregnant, with recovery.

3. Laboratory Reports of the Colleges of Physicians of Edinburgh, 1892.
4. Annals of Surg., Phila., vol. xxxix, 467.
5. Beits. zur Klin. Chir., Tub., 1903-04, vol. xli, p. 170.

Stander performed nephrectomy on a cystic kidney for pain and hemorrhage. Infection and abscess ensued, requiring removal of the kidney, with recovery of the patient.

Schmid, Niemeyer, Bardeleben, Hayems and others, however, have performed nephrectomy for polycystic kidneys, but the patients have died of uremia, and at autopsy the other kidney has been found the seat of rather extensive disease.

The conclusion becomes evident that while from hemorrhage or suppuration in a cystic kidney, or from symptoms due to the size of the tumor, nephrectomy may be indicated, it should never be performed until, by exploratory incision or ureteral catheterization, the other kidney has been found to be healthy. Especially important is it in operating on obscure kidney tumors to have in mind the possibility of congenital cystic kidney and be prepared to deal with the condition if found.

In certain rare instances not over 2 to 3 per cent. (Bevan) congenital cystic kidney is unilateral, and occasionally, as in one of the cases found at autopsy at the hospital, compensatory hypertrophy of the other kidney is found. In such a case as this, if the symptoms justified it, nephrectomy would be obviously proper.

The question now arises, What are we to do in case the mobility or enlargement of a kidney is making life unendurable and the condition of the other kidney precludes nephrectomy?

Under these conditions Curtis and Kammerer[6] have practiced incision and breaking down of the walls of the larger cysts sufficiently to reduce the size of the kidney, and suture of the depleted organ to the lumbar muscles. In the two cases in which this was practiced the symptoms were relieved and the patients enabled to return to work. Curtis' patient was in good health and had gained in weight at the end of three years. The method of these surgeons consists in free incision of the diseased kidney and systematic opening of the larger cysts, which are packed with gauze to secure obliteration. By this[6] the size of the organ and tension of the capsule are markedly diminished, relieving the compression of the more or less healthy tubules. The kidney is thoroughly anchored in the loin and symptoms due to mobility disappear. Permanent fistula does not ensue unless there is some stricture in the pelvis. Such a procedure may be applied first to one kidney and then to the other as it increases in size, thus preserving as long as possible the functions of the diseased organs and prolonging the life of the patient. This procedure is far safer than nephrectomy, and accomplishes the desired result of diminishing the size and mobility of the tumor and relieving pressure on the remaining tubules in the simplest and safest way. It seems to me the only rational surgical treatment and is therefore advised.

Without knowledge of Curtis' and Kammerer's work, a similar procedure was adopted in Case 1 of this paper, a report of which follows.

REPORT OF CASES.

In Cases 2 and 3, which were kindly placed at my disposal by Drs. J. B. Blake and G. H. Monks, the only other cases operated on which I have been able to find in the records of the City Hospital, nephrectomy was performed, as the size of the tumor was so great and the symptoms so severe that this procedure alone seemed to promise relief. Death resulted apparently from uremia.

6. Annals of Surgery, 1901, vol. xxxiv, 419.

Case 1.—M. H., 26 years of age, single, a nurse, was admitted to the City Hospital in August, 1904. Two and one-half years ago she had felt a small tumor in the right upper abdomen, which had gradually grown larger and descended. At various intervals she had felt pain in the region of the tumor. The symptoms were much worse in the last eight months, and the tumor had fallen as low as pubes and been felt to go back on recumbency. She has suffered from headaches. There have been no urinary symptoms.

Examination.—Urine pale; specific gravity, 1018. Sediment normal, and abnormal blood, slight in amount. Numerous casts, hyaline and granular, with an occasional cell adherent. A few leucocytes. A few round cells. A mass the size of two fists, freely movable, was felt below the right costal margin. The left kidney was just palpable. There was no tenderness or spasm. A right lumbar incision showed a multilocular cystic kidney. The cysts were of various colors and the size from a hickory nut to an English walnut.

Operation.—The kidney was so greatly enlarged and there was so little renal tissue that a nephrectomy was considered, but before proceeding to do it it was thought wiser to ascertain the condition of the other kidney, which was accordingly done by a left lumbar incision. That kidney was also found to be somewhat enlarged and cystic, though not nearly so large as the right. After suture of the wound on the left, a number of the larger cysts in the right kidney were opened and the kidney sutured as well as might be to the lumbar muscles. During anesthesia and during the afternoon after the operation the patient was attacked with cyanosis and collapse, the symptoms requiring artificial respiration. These attacks occurred after the administration of one-sixth of a grain of morphin, and were apparently due to a particular susceptibility to that drug. Otherwise the convalescence was normal. The patient left the hospital in about six weeks, and up to January, 1905, was well, save for some gastric disturbance, and able to take care of a case. Seven weeks after the operation she says she was "really feeling well" and "fell the whole length of the schoolhouse stairs without pain," thus showing that the kidney was apparently fixed in place.

Subsequent History.—Nearly six months after the operation she was taken ill with pain in the side and tenderness over the kidney and a temperature rising to 101 in the latter part of the day. She had headaches, loss of appetite and bloody urine. This condition lasted for three weeks and then gradually wore away. She was well until early in October, fourteen months after the operation, when she had a week of weariness, with considerable sideache and headache. At this time she had a chill. A diarrhea accompanied this illness and the patient thinks it may not have been due to any trouble in the kidney. Ever since then up to the present time (May, 1906) she has been in good health, or, as she expresses it, "comfortably well." Walking more than a mile at a time always produces an ache in the side. Standing still for only a few moments will cause this ache. Standing hurts more than anything else. She has occasional dull headaches, which gradually wear away in the middle of the day, and every few weeks she has a severe headache. Before the operation she had complained of swelling of the ankles. This has not appeared since the operation. An examination of the urine, taken about three months after the operation, showed a trace of albumin, and another examination, about six months after the operation, showed also a trace of albumin, normal red-blood corpuscles and squamous cells, but no casts. During this week (May, 1906) a test for albumin, made by Dr. Thomas, showed no albumin at all.

About fifteen months after the operation the patient began to work steadily at her profession and has worked since not more than half the time, but doing any kind of work that offered. At no time has work seemed to cause any trouble. Her weight has been about ten to twelve pounds less than before the operation. The kidney seemed to the patient to feel smaller after the illness in January, 1905.

It will thus be seen that the operation, though I felt very doubtful of it at the time, succeeded in diminishing the size of the kidney and fixing it in position, so that the patient has since lived a useful and fairly active life. In another similar case I should incise a much larger

number of the cysts and perhaps pack them with gauze in order to secure obliteration, but at the time this was done I was unfamiliar with this procedure.

Case 2.—J. S., an Italian blacksmith, 45 years old, was admitted to the City Hospital on Sept. 11, 1905. No history was obtained.

Examination.—He was well developed and nourished. Abdomen full, somewhat obese. The left side of the abdomen contained a large mass, which was hard, rounded and apparently more than five inches in diameter. It was dull on percussion, did not move with respiration, and the fingers seemed to get between it and the spleen. It was not especially evident by palpation in the flanks. There were no symptoms except slight abdominal pain. The urine was pale, acid, specific gravity 1007, albumin slight trace, quantity not stated.

Operation.—A diagnosis was made of tumor of the left kidney, and on September 17 he was operated on by Dr. J. B. Blake. A five-inch incision was made outside of the left rectus. A mass made up of multiple cysts, the shape of the kidney but four times the size, occupied the position of the left kidney. Transperitoneal nephrectomy was performed. The right kidney was examined by palpation through the operation wound. Palpation showed it to be somewhat cystic and slightly, if any, larger than normal.

Subsequent History.—September 21, after the operation and recovery from the ether, the patient passed his own urine for twenty-four hours, followed by a period of suppression. After twenty-four hours a sudden rise in pulse and respiration took place. He was catheterized. The urine was pale, specific gravity 1010. Chest examination showed congestion at the right base, with rales and high-pitched respiration. The pulse continued to rise, and in spite of stimulation and salt infusions he died three days after the operation.

Case 3.—M. J., a woman, 33 years of age, single, was admitted to the City Hospital in the gynecologic service of Dr. C. M. Greene, May 9, 1906. A diagnosis was made of pregnancy, with eclampsia. For the past few months menstruation had been irregular and profuse, and for the last five months she had not menstruated. There had been noticed a painless enlargement of the abdomen, which had aroused suspicion of pregnancy. The possibility of this the patient denied. The symptoms before she entered the hospital were enlargement of the abdomen and dull, general abdominal pain. When she entered the hospital she was unconscious, but could be partially roused.

Examination.—She was well developed but poorly nourished, skin pasty and yellow, respiration slow and labored, heart negative. Urine, May 10, was acid, pale, 1010. Albumin, ¼ per cent. Much normal blood. Small amount of pus and cholesterin crystals. Two days later a few fine granular casts and many squamous cells were found. Blood count showed reds 2,200,000, whites 14,800. Hemoglobin 35 per cent. Differential count of 500 whites showed polynuclears 87 per cent., large mononuclears 10 per cent., small mononuclears 3 per cent. High color index. Marked diminution in number of blood platelets. Five monoblasts and four megaloblasts are seen in two smears.

Local examination showed the abdomen distended. A hard nodular, non-fluctuating, movable tumor could be felt in the right iliac fossa, hypochondrium and right lumbar region, extending over the mid-line to the left lower quadrant. The tumor was dull, not tender, and showed apparently a sulcus at the level of the anterior superior spine, running toward the gall-bladder region. A vaginal examination showed the os hard and the uterus not freely movable. The fundus could not be made out. A probable diagnosis was made of fibroma of the uterus, obstructing the ureter and causing a right hydronephrosis.

Operation.—Dr. George H. Monks operated by a median incision below the umbilicus. He found a mass which filled the entire abdomen, arising from the right kidney and covered with multiple, vari-colored cysts of varying size. The ureter was tied off and the tumor removed. The left kidney was also markedly enlarged and cystic. The uterus was normal. The patient was in a critical condition at the end of the operation and did not regain consciousness. Pulse 80 and soon became weaker. The patient passed a fair amount of urine, but in spite of stimulation failed and died at 3:50 o'clock of the morning of the day following the operation.

Examination of the tumor showed congenital cystic kidney.

This case is of interest as showing that enlargement of the kidney in the female, associated with amenorrhea, may cause suspicion of pregnancy. A review of the symptoms indicates that the partial unconsciousness at entrance was undoubtedly due to uremia. The necessity of relieving the patient of the weight and dragging, together with the possibility that the tumor was a sarcoma, led to the performance of nephrectomy. The fact that nephrectomy was performed did not, apparently, affect the ultimate result, as the patient was markedly uremic and in very poor condition at the time of the operation.

The following cases, taken from the autopsy records of the pathologic department, are appended as illustrating the fact that the condition frequently escapes attention until revealed at autopsy. The first case is also interesting as showing cystic disease of the liver, which is not infrequently associated with cystic kidney. Its bearing on the etiology of the disease is interesting, and, as mentioned above, is confirmatory of congenital origin:

Case A.—A woman, 47 years old, was admitted to the City Hospital Feb. 3, 1896. She died of purulent bronchitis and bronchopneumonia. "The liver extends 5 c.m. below the border of the ribs. It is filled everywhere with cysts, which project somewhat above the surface of the liver in numerous places. They are lined with a smooth membrane, sometimes showing numerous projecting septa, which are filled with a perfectly clear, straw-colored fluid. The largest cysts are in the upper portion of the right lobe. They vary from 5 cm. in diameter to microscopic size. The consistency of the liver, apart from the cysts, appears normal.

"Both kidneys greatly enlarged. Weight of both, 700 grams. Capsule stripped off easily. Filled with innumerable number of cysts, ranging in size from pinhead to 3 cm. in diameter. They are in all parts of the kidney. Contain in part a perfectly clear fluid and in part a brownish, chocolate-colored fluid. On stripping off the capsule of the kidney numerous cysts are found. The fluid in them appears to be under considerable tension. None of these cysts communicate with the pelvis of the kidney. They are probably more numerous in the cortex than elsewhere. Both kidneys are equally affected. Both of same size. The renal tissue between the cysts is pale, reddish, somewhat granular and opaque. Markings can not be made out.

"Urine, 1026. Albumin, ¼ per cent. Much blood. Hyalin and fine granular and epithelial casts, with fat adherent. Compound granule cells covered with fat and epithelium. Large and small round cells. Casts of small diameter. Few pus cells.

"Clinical History.—Thirteen weeks of vomiting and diarrhea. swelling of legs and abdomen. Liver noted as enlarged, hard and irregular. Kidneys not noted as enlarged."

Case B.—R. M., a man, 20 years old, was admitted to the City Hospital Nov. 25, 1898. Clinical diagnosis, malignant endocarditis. Anatomic diagnosis, endocarditis and acute lobar pneumonia. Kidneys.—Weight, 635 grams. Large. Surface shows everywhere cysts, varying in size from 1 mm. to 5 cm. in diameter. On section kidney appears to be made up of a series of cysts, which are found in both the medullary and cortical portions. In some places the cortex is entirely replaced by cysts. Cortex measures 7 mm., except over some cysts, where it measures as low as 4 mm. In other places it has entirely disappeared. In the cortex the glomeruli are seen as rather prominent grayish specks. Microscopically the kidneys showed very slight increase of connective tissue here and there in the cortex. Usually shows infiltration, with plasma cells. Some exudation of lymphoid and plasma cells in the intermediate zone.

Urine turbid, 1018. Albumin, slightest possible trace. Few hyalin and fine granular casts, some renal cells adherent and some of very large diameter. Numerous small round cells and considerable pus free and in clumps. Illness three weeks. No history of renal involvement.

CASE C.—M. L., a woman, 36 years old, was admitted Aug. 26, 1900. Glossitis. Purulent bronchitis with edema of lungs. Diaphragmatic hernia.

Kidneys encroach greatly on peritoneal cavity. Weight of right kidney, 1,160 grams; left, 780 grams. Right kidney, 27x10.5x8 cm. Surface markedly irregular and distorted, due to multiple cysts, which have apparently, except as mentioned below, entirely replaced normal kidney substance. Cysts vary in size from 1 mm. to 4 cm., thin-walled for the most part, so that the cyst contents are visible in many as a straw-colored fluid. Other rounded masses scattered at irregular intervals over the surface and surrounded by cysts of a dark grayish-brown color and of considerable firmness, suggesting the remains of kidney substance. Left kidney 20.5x10.5x7.5 cm. On posterior surface a firm grayish mass, evidently kidney substance, measures 4x2.5 cm. No abdominal tumor or symptoms on account of kidneys were noted during life.

Urine, 1012. Albumin, very slight trace. Sediment very slight, consisting of pavement epithelium. Cells from neck of bladder, coffin-lid crystals, bacteria, a few normal blood globules and leucocytes.

CASE D.—F. B., a man, 70 years old, was admitted to the hospital April 5, 1901. Death from double pneumonia.

Kidneys.—Right, 250 grams; left, 220 grams. From anterior surface of right kidney projects a thin-walled cyst, 4 cm. in diameter. At lower pole of same kidney a similar cyst, 6 cm. in diameter. Left kidney presents a similar cyst and seven smaller cysts. Contain clear straw-colored fluid. Specific gravity, 1010. Slight fatty degeneration. Glomeruli stand out as bright-red points. Microscopically the glomeruli are large and injected. Slight focal increase of connective tissue, with atrophy of adjacent tubules. In places are dilated tubules (?), in which is granular material. Certain tubules contain granular casts.

No symptoms due to cystic kidney.

CASE. E.—M. K., a woman was admitted to the hospital May 8, 1901. Ischiorectal abscess. Bronchopneumonia. Edema of lungs. Congenital cystic degeneration of right kidney, with compensatory hypertrophy of left. Age 60 years. Right kidney, weight 40 grams, measures 9x2.5x2.5 cm. Made up almost entirely of cysts from 1 to 2 cm. in diameter and filled with clear fluid. These are separated by only a thin wall of kidney substance. At the upper pole, kidney tissue reaches its maximum thickness, being there 1 cm. Hilum of kidney dilated, but ureter patent, showing no evidence of obstruction. Right renal cortex about one-third size of left. Left kidney weight 235 grams, 14x6.5x4.5 cm. Smooth. Capsule strips easily. Pale on section. Glomeruli and markings of pyramids indistinct. Cortex 8 mm. thick. Many fat droplets in tubular epithelium.

No symptoms recorded in relation to kidney.

Urine, much pus. (Ischiorectal abscess.)

The case is evidently one of unilateral cystic kidney, with compensatory hypertrophy of the other.

Several other cases of cystic kidney in the autopsy records are not included, as a careful study showed that the cysts were secondary to interstitial nephritis, and the above cases are the only ones of undoubted congenital cystic kidney taken from a very large number of autopsy records. It is interesting to note that in none of them was a diagnosis of the condition made during life.

CONCLUSIONS.

From the above discussion we may draw the following conclusions:

1. If there be sufficient healthy tissue between the cysts to perform the normal renal functions the disease may never attract attention, and the patient may live a normal life and die of disease independent of the kidneys.

2. Under the same conditions as to renal tissue, while the renal excretion is normal, the cysts may cause pain and discomfort from their size and weight without dangerous symptoms for years. Mobility of the kidney, with its accompanying troubles, may result from this enlargement.

3. The growth and enlargement of the cysts may so strangulate and compress the normal kidney tissue between them as to throw it out of commission, so that stasis and uremia may result.

4. The normal tissue between the cysts may become affected by the various forms of nephritis, just as healthy kidney may, and this nephritis may be fatal in itself or by reason of the cardiac and arterial changes which accompany it.

5. These same cardiac and renal changes may and do accompany the compression of the intervening tissue by the cysts, and are not an infrequent cause of death in these cases.

6. The surgical aspects of the disease relate to the pain and discomfort due to the size of the tumors or mobility resulting from them, and in operating for these conditions it is all important to remember the pathology of the disease and more especially the fact that it is bilateral in 98 per cent. of the cases. A cystic kidney, while causing pain and disability by its enlargement, may still be performing so large a part in urinary excretion that its removal would be dangerous to life from renal insufficiency.

7. It, therefore, becomes important if possible to take some means to diminish the size of the offending organ and anchor it in place without interfering with its secreting functions. Such a procedure, which will be vastly safer than nephrectomy, consists of the free incision and puncture of the larger cysts, thus diminishing notably the size of the kidney, and suturing of the organ in position. If for any reason a nephrectomy seems desirable it should not be performed unless an exploratory incision or ureteral catheterization has demonstrated that the other kidney is healthy.

529 Beacon Street.

OPHTHALMIC PRACTICE OF THE PRESENT TIME.*

FRANCIS VALK, M.D.

NEW YORK.

An extremely interesting paper by Dr. George M. Gould[1] on "A Study of Failures in Ophthalmic Practice" has called my attention to the subject of the work of the ophthalmologist of the present, and we may well ask the questions: What is it? What shall it be? Dr. Gould's candid acknowledgment of his failures and the reasons therefor will be readily accepted by most ophthalmologists, who will agree with the premises so well set forth in his paper. But I do not think, however, that the final word has been said as to the causes of our failures, nor do I believe that the present method of examination can not be improved. If we do have failures, such conditions must always exist, more or less, with all medical men, be they specialists or general practitioners. No one is infallible, even the most expert may be misled or fail by reason of conditions which the physician can not control. This subject can not be considered from any one standpoint; the work of all the investigators now working along these special lines in our profession must be included.

We may object to the statement: "By failures to

* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-seventh Annual Session, June, 1906.

1. Med. Rec., Sept. 30, 1905.

cure I mean the failure to relieve those symptoms due to eyestrain," as we well know, and as Dr. Gould has shown, that we must not consider all "the ills that flesh is heir to" as due to eyestrain. I do consider, however, that in the present state of our knowledge of eyestrain, and the present advanced methods of examination of ocular conditions, our failures will compare very favorably with all other work in the medical profession. If so, then we may justly ask: What is or should be the essential practice of ophthalmology at the present time?

Before we take up the study of the advancement of ophthalmology during the past two decades, let us study some of the reasons for our failures as set forth in Dr. Gould's paper. I note, first, the "want of a good refraction school." In attempting to answer this I must start out with the assertion that I must differ very positively with the statement that "ophthalmology is most inaccurate and unscientific," because I believe fully in Helmholtz's statement: "Ophthalmology is by far the most accurate and scientific of all the specialities of medicine," and, furthermore, because we do agree in our examinations of the refraction and motility of the eye if these are properly and scientifically made. We can never agree on this subject if we do not study carefully the investigations of others who are equally as scientific as ourselves, but instead set up a little pedestal of our own and, standing on it, make the assertion that our work is alone correct, while that of others is all wrong. The investigations of Stevens, Risley, Savage and others surely deserve some consideration even if we can not accept all their teachings. Some of us will be proficient with one method of examination, others will succeed in some other way, but the refraction of the human eye must be a fixed condition, which by proper methods of examination must show the same results to all observers who are sufficiently expert in the use of the objective tests that should be found in every well-equipped oculist's office.

If this be true, we must have good refraction schools in this country, and I would venture the assertion that the refraction schools of this country are more fully advanced and more complete in their teachings than in any other country in the world. The reader of this article may ask: Where is this teaching that is so perfect? The answer is, In no one place nor is it given by any one teacher, but all combined furnish the result. We might say that Dr. Gould's teaching was all that could be desired, but yet I fear that if his methods only —as I understand them—were practiced we should have many failures. What, then, shall the student of ophthalmology do, and where shall he go? I would answer that in this way: Let him listen to the teachings of all the eminent men in this country who are constantly placing their views on ophthalmology before their students and the medical profession; not in a narrow way, by following the teachings of any one man, but by the true and honest way, of carefully studying the methods of all and then combining them in the way that seems best to himself.

Now let us consider what seems to me is Dr. Gould's teaching. "The day of the worship of the scissors or of the ophthalmometer is long in the past." If this implies anything, it is that we must put aside the use of these two instruments as useless and obsolete. Certainly such an assertion would seem an obsession to many well-advanced oculists, and I venture to say that no complete examination of the eye should be made without the use of the ophthalmometer, notably so in the prognosis of myopia. I shall speak of the scissors later, but the doctor can not deny that some cases have failed with glasses and have been relieved with the aid of the scissors.

"Incorrect diagnosis of ametropia" is said to be another reason for our failures to relieve eyestrain. This can not be denied, but is it not a personal fault? Is it not one that must exist in the physician himself and for which he must take the consequences? This almost goes without saying, yet it is not the fault of our teachings; if the examiner of refraction will not devote the necessary time to following out a scientific examination of the refractive condition he must fail in many cases, and if he does give the time to his patients he should be sufficiently expert to notice and to correct every small error either astigmatic or muscular.

Is it an error to recognize and to correct the condition known as heterophoria? Dr. Gould evidently admits that this condition may be present and speaks of certain conditions of heterophoria as esophoria, etc. He states that "esophoria of high degree is not usually curable and is rare." Just here we may find one of the causes of failure, for the proper operation for esophoria does and will cure many cases of this condition after the most careful examination and correct use of the glasses has failed to give any relief. I have seen these cases and have reported a number of them in which a proper operation has resulted in obtaining complete relief of symptoms that have existed for years, and this relief has been permanent, as my records will show. Hence, we have no right to accuse the physician who carefully operates for heterophoria of doing so from a "financial point of view"; the same accusation has been made regarding the operation for the removal of the appendix during the quiescent period, though that assertion has not altered the opinion of some of our best surgeons. Now we must not consider every physician who operates for heterophoria as a tenotomist—I decidedly object to the term, as I think that it is extremely unjustifiable even though it is one that seems to be freely used at the present time. Tenotomy has had its day, since the first operation was performed for the relief of exophoria associated with myopia. To-day this procedure is giving way to the more advanced theory that heterophoria is due to a primary essential weakness of one or more of the rotators of the eyes in relation to its antagonist, and the operation that will strengthen these weak muscles is gradually taking the place of the tenotomy of the stronger muscle. If, then, esophoria may exist, is it not a sufficient corollary that exophoria and hyperphoria may also exist and cause an imbalance and eyestrain that can not be relieved by glasses, even when we have eliminated the "patient's personal equation" and have given the glasses or prisms after a most careful and scientific examination?

As I understand the teachings of those who object to the operative correction of muscular insufficiency, we must examine the eyes under atropin, order glasses, if they do not relieve, repeat the same process and so on. It seems to me like "piling Pelion on Ossa" to reach the heavens, and how many failures do we have by trying to follow that method.

We may reasonably ask: Is heterophoria refractional in origin and innervational in nature? To my mind and from my experience I must answer that question in the negative. What evidence do we have that it is refractional? Some patients have been relieved of their reflex symptoms by the use of glasses. Only this and nothing more, and yet how many patients do not

find the expected relief after the most careful correction of their refraction under the use of a mydriatic. There must be a reason somewhere for these failures. Perhaps all this may be infantile in argument, but, as the assertion in an affirmative sense is made over and over again, then the proper correction of that fault should bring about certain relief. Why does it fail in some cases? Because in the patients who fail to find relief there are other causes that are at fault besides the refraction, and chief of these is the imbalance of the ocular muscles. Perhaps this condition *per se* may not be great enough to cause all these many "ills that flesh is heir to," but associate this imbalance with a refractional error, and then we have the true cause of many reflex symptoms and the true reason why some patients who have had their imbalance corrected still have to wear the correction for their refractional condition. I do not think any one has yet claimed that the correction of an imbalance by an operation will at the same time correct an existing refractive error. *A priori* we might as well ask why does Dr. Gould advise his patients to wear prisms with their glasses if the imbalance is only refractive, or why shall we advise prism exercise? These are interesting questions that I trust may be answered at some future time. As to heterophoria being "innervational in nature" I am utterly unable to answer that question, as I have yet failed to find any reasonable explanation of that phenomenon in any writings of those who persistently advance the theory. To me it seems to be only an assertion completely wanting in proof. I shall be more than pleased when I can feel that "exophoria or subnormal adduction" is always curable by prism exercise and proper glasses. I have failed to be so successful with my cases if the imbalance is of any considerable degree. In those patients seemingly helped I fully agree with Winters that muscular tissue built up in this way is not nor can it be permanent. A child's muscular tissue may be developed by constant exercise, but unless that development is supplemented by a perfect metabolism from suitable food the tissues so built up will soon return to their former flaccid condition. It is so with the muscular balance of the eyes. We may improve the power of adduction by the constant exercise of the interni by the use of prisms—but this can not go on forever—and when we stop the exercise then we find the old imbalance returning with exophoria present. Esophoria—or subnormal abduction, if I may use that term—will not yield to the same exercise, and why? There is no answer to that question, nor will the procedure of prism exercise influence a vertical imbalance, yet the remedy for one should be the remedy for all.

Now if we earnestly seek for the true cause of these cases of imbalance, either with or without a refractive error, we must find it in the muscular structure of the eyes. Not in the refraction, a contributing cause, nor in the innervation, as the nerve impulse or the brain centers simply cause the muscles to act according to their functions and to the extent of their muscular development. (I do not think the prize fighter has any more innervation than myself, but I do know that he has more muscular power.) If, then, it is the muscle that is at fault, it must be in an essential weakness of an adductor or an abductor, in all cases of a lateral imbalance.

If these premises are correct, we may find some reason for the many diatribes against the tenotomists or the so-called muscle cutters, as it is a poor substitute for an operation that would strengthen a weak muscle at the expense of a strong one, but that does not prove that "operation cures nothing." If tenotomy is not indicated and exercise will not give a permanent cure, we must have some remedy for these cases, "our failures," and I think that is fully indicated from the very nature of the primary cause. In other words, if the essential cause of all cases of heterophoria is weakness of a muscular function, then the indications for the correction of that imbalance must be an operation that will enable that muscle to act normally. To this end we must turn to surgical means and an operation that will produce this effect can be found in the principle that if we shorten a muscle in its long axis then with the same degree of innervation we must have a greater action of motion on the peripheral part to which the muscle is attached. This stands without question, and reason should indicate to us that if we shorten the externus we must enable that muscle to increase the rotation of the eyeball outward and in this way correct the esophoria. Is this always successful? I can not say that it is always so, unless we could eliminate the personal equation, but I do state, without any reasonable contradiction, that we can restore the muscular balance by such an operation in a vast number of cases, so far as the objective and subjective tests will show. That we must have failures goes almost without saying, but I feel that the percentage of our failures with this operation, when it is fully indicated, will not be greater than the failures to relieve all cases of eyestrain by glasses when the refraction alone is at fault. For the purpose of study in reference to the statistics of refraction and motility, I have taken the last one hundred cases from my books at the date of this writing. These patients were all personally examined as to the refraction and the muscular balance. In three-fourths, or 76, I found no special evidence of any muscular imbalance; among the remaining 24 there are three cases of squint which may be omitted. The remaining 21 patients all presented some evidence of heterophoria of more or less degree, as shown by the Maddox rod test, the prisms and the tropometer. Nearly all had some refractive error that was carefully corrected and glasses ordered. It is fair to assume that, as they did not return, the relief from the symptoms afforded by the glasses had been satisfactory. This reduces the number of cases of heterophoria that need attention to only 2 or 3 per cent. These patients, after the glasses had been fairly tried without relief of their symptoms, were operated on, according to the imbalance indicated by the examination, by the shortening of the muscle with the catgut suture. The final result proved the necessity for the operation.

A new element has been introduced under the subject of eyestrain that should require some attention at the present time; this is called subnormal accommodation. It was mentioned in Dr. Gould's paper, to which I have previously referred, but, unfortunately, though beautifully alluded to, yet we find no explanation of the necessary tests by which an ordinary observer or even a scientific one can make a suitable diagnosis of this condition. To say that it is an "elusive mischief" may express the matter fully, and the rough rule that plus lenses over the distance ones will sharpen the images of ordinary print when held at eighteen inches is hardly a scientific explanation, and one that is simply and wholly subjective. Plus lenses will always sharpen the image of printed matter in the young as well as in the old, but Nature will not admit of such a correction in the young when the ciliary muscle is active and the lens elastic.

Theoretically, we should all use plus lenses for the near, so that the divergent rays may enter the dioptric system parallel and so place the focusing muscle at rest. But just as "Nature abhors a vacuum," so will she resent any artificial interference with her natural function of seeing. To see at the near point the ciliary muscle must contract—you may call it habit if you wish—even with the convex glasses before the eyes. Now if our patients can read the finest type—Jaeger No. 1—either without glasses or with the full correction of the static refractive condition at six inches or less, showing full reserve power for the usual reading distance, then I doubt very much if we can have any subnormal accommodation. Furthermore, if patients may accept the plus lenses the continued relaxation of the ciliary muscle will not be tolerated for any considerable time in young people. I always test my patients for the near point, and if I find it sufficiently near I do not think they will need or use convex glasses. It is true that exceptions will prove the rule, and that we do have exceptions I am willing to admit, but I think that the young persons who will use the convex lenses for any continuous work will not have a near point of six inches; they will have a large amount of uncorrected hypermetropia or some general physical condition that needs the services of the family physician more than that of the oculist. This leads us to the point which all oculists should realize: that we, as physicians, must work together; in other words, that the presence of subnormal accommodation is not really the indication for glasses, but shows, rather, that the general system is at fault and that under the care of the family physician, that best of all specialists, the patient will recover without the use of glasses.

Relief from the strain of the accommodation by outdoor exercise for the young, instead of passing the time reading books and papers, attention to hygiene and suitable foods to build up the bodily strength will soon restore a natural function that does not need nor should it ever have artificial aids to seeing. It is a difficult subject to decide impartially; we do not like to send our patients to others. We must consider that the practice of medicine is not a very lucrative one and financial reasons must intrude themselves—as one physician said to me when attempting an operation he should have referred to an oculist, "I wanted the money"—but if we had that true *esprit du corps* between the physician and the specialist, so that the physician could feel "my own shall come back to me," then he would more gladly seek the aid and counsel of one who may be more conversant with that special branch of medicine which the case demands. The same rule holds good on the part of the specialist. He also is a physician, but after he has completed his examination along his special lines and finding that the patient no longer needs his special services, should he not refer the case to the family physician? This is a golden rule that in the end would be productive of much benefit in a financial sense to physicians and to patients. I know that the specialist must treat certain of his patients in whom there are certain pathologic conditions that need his watchful eye and that these patients can not be referred back to the family physician if he considered their best interests. Diseases that involve the iris and the cornea should always be under the exclusive care of a specialist, but many others will do just as well under the care of the family physician after the diagnosis of the ocular condition has been made.

The teachings of ophthalmology of the present time present many changes from that of two decades ago. In my early work on refraction we were wholly dependent on the subjective tests of the visual power. We did not know if the patient's selection of the glass was the correct one, and if we were uncertain we were told to use the "crucial test," or the use of atropin for two or three days, when, the accommodation being paralyzed, the patient must accept the correct glass. It is true we had the ophthalmoscope in those days, by which we could decide the gross errors, as hypermetropia and myopia, but low degrees of astigmatism were not easily recognized. Such was the armamentarium of the oculist in those days, and when I read a paper before the New York State Medical Society at that time on "Our Refraction Cases" the vast majority of them were classed as simple hypermetropia, while imbalance of the ocular muscles was not thought of except in fixed squint and paralysis.

To-day, how different are the teachings of ophthalmology! Now the crucial test is not so often necessary, and in my own teachings the objective methods of investigation of the refractive media takes the first place. I am not a prophet, certainly not in my own country, yet I venture to say and I hope I am correct that the day will come when the physician is so advanced in his refraction work that the diagnosis may be made and the correct glasses given without consulting the patient.

Perhaps that day is far distant, but during the past decade the advances in objective methods have been very great. Javal's ophthalmometer is an exceedingly useful instrument in the diagnosis of astigmatism and has demonstrated that it is in the anterior surface of the cornea in the vast majority of cases. The same instrument enables us to measure the radius of the cornea, by which we have an indication of the refraction, and in myopia the differential diagnosis between benign and pernicious conditions; in other words, between axial and refractive myopia. Furthermore, the retinoscope has come to us in the past two decades, and with this instrument we have an excellent method for the diagnosis of the refractive condition of the entire dioptric apparatus and one that is particularly useful as an objective method with children and illiterate persons. These are scientific instruments conceived, and their uses elaborated in a scientific manner, and with proper study and constant use will fulfill all that can be required of them. Their use can not be mastered in a day nor in a month, but I know that when we have fully appreciated the principles on which the examination depends the application of these tests, even without the use of a mydriatic, will reveal the static refraction of the human eye in almost every case. I do not state that these instruments are infallible, but I do think that if associated with these instruments we employ a careful and systematic method of the subjective test the crucial test will be seldom used or found necessary.

A scientific examination should not end with the correct estimation of the refraction. We can not say that the fault, or, I might say, the cause, of all the phenomena of eyestrain exists in the refraction. Errors must be corrected carefully and scientifically, but after that has been done we still meet with failures in some of our cases, not many, perhaps 4 or 5 per cent. With proper glasses these patients are better for a time and then the old symptoms return. Why? If they have been carefully examined, then changing the glasses will do no good and the fair and honest oculist must extend his examination to the motility of the eyes.

We see by the action of the refractive media on the rays of light from the pages of our books, etc., but to make that vision perfect we must have binocular vision; in other words, the eyes must work together so that the image of the object may fall on corresponding regions of the retinæ. This is one of the most beautiful functions of Nature that can and must be adjusted by the action of the straight muscles of the eyes, assisted by the oblique, to keep the vertical meridians parallel. Now if there is an imbalance of any of the ocular muscles, not sufficient to cause squint, but that does require a constant effort of innervation of one or more muscles to keep up this constant fixation of the visual lines when the vision is in the distance or in the near, it seems to me that this constant effort of fixation, this work that calls forth the constant innervation of a muscle or muscles about the eyes, must cause some symptoms of eyestrain. Nature has certainly a fixed standard of vision; that is acknowledged by all oculists; and I can see no reason why we should not have a fixed standard of rotation that will equalize the necessary innervation of the ocular muscles. This is denied by some observers, even to the extent of saying that no case of eyestrain can be due to a want of balance between the opposing muscles, and others that a comparison between the action of one muscle and that of the opposing one has no foundation in fact and is useless as a test. But observers and investigators have opposite views, and why? Because the careful and repeated application of strictly scientific tests in their cases proved the correctness of their views.

If, then, we admit the existence of an imbalance of the ocular muscles—and no oculist can deny it if he will read what Seguin[2] taught some twelve years ago—it goes without saying that the teachings of ophthalmology must include this subject. When we consider how important these movements of fusion and of fixation are to the individual, how beautifully they are adjusted to the wants and the pleasures of the human race to-day, how essential they are to the preservation of binocular vision, then it becomes imperative that we should understand the normal function of fusion and of fixation. We can not see when the eyes are moving; they must come to a state of rest, so that the images may be formed on corresponding parts of each retina, and if the muscular apparatus that controls this function is at all in imbalance there must be certain symptoms of eyestrain with, perhaps, certain phenomena of reflex conditions. What, then, is the normal function of fusion or duction and of fixation or version? Do not the daily wants of the individual show it? The eyes are at rest when the visual lines are parallel and the look is in infinity, and when the look is directed to the near point the visual lines are convergent. These are the requirements of the visual act in our daily life, and Nature has provided for it, as we find that adduction must always be greater than abduction, as about three to one. The function is voluntary and is controlled by the lower brain centers. This is well shown by the prism test, and I believe that a comparison between these rotations under the stimulation for fusion is essential and necessary.

Furthermore, the function of orientation or the topographical sense—to see around us without moving the eyes—is the function of our field of vision; but to see clearly in any one particular region the eyes must be directed to that point. This is the function of binocular vision and depends on the conjugate movements of the eyes, controlled by the higher brain centers. Here we find the field of version or fixation, with its limits established at the points to which the eyes can be turned from that of the first position, with the head immovably fixed. This, again, is a clearly demonstrated field, in which the rotations of the eyes have certain limitations that can be scientifically measured by an excellent objective instrument, the tropometer of Steyens. It is found in the normal field to be about 55° inward and about 50° outward from the position of rest with the look in infinity and about 33° up and 50° down. If we consider these as normal or standard fields, will not an imbalance show a decided change in these limitations?

Is it not as necessary to teach the method of making these investigations in the study of eyestrain as that of the refraction of the dioptric media? It goes without argument that this must be so. This is my method of teaching ophthalmology, and I venture the assertion that an eye which has normal vision and normal fusion and fixation will not have any symptoms of eyestrain, either reflex or in the eyes themselves. I will not dwell on the correction of these cases of imbalance except so far as to say that the more I study this condition the more I feel convinced that all imbalance is primarily and essentially due to an abnormal anatomic weakness of some one or more of the straight muscles of the orbit. If this contention is correct, then I do not advise any muscle cutting, but I do advise the operation known as shortening, by taking a tuck in the muscles and with the use of the catgut suture. I will conclude with the words of Dr. Gould, whom I have quoted so freely: "But when all has been confessed, discounted and allowed for, the truth remains that in no department of medicine is practice so satisfying, in none is cure so much the rule, as in refraction work." But I would add to that assertion: If to our refraction work we also consider the possibility of an imbalance of the ocular muscles our failures may be less and our satisfaction may be greater.

2. Seguin: New York Med. Jour., Dec. 3, 1892.

DISCUSSION.

Dr. A. E. Prince, Springfield, Ill., called attention to the closing paragraph of Dr. Valk's paper, which, if correct, he said, will inspire him with new zeal in the treatment of a class of cases which have hitherto been a source of discouragement to him. This resolves itself, he said, into two tangible propositions: 1, all asthenopia is curable; 2, no tenotomies are advisable. Dr. Prince finds so many cases of asthenopia, accompanied by small errors of refraction and little or no muscular imbalance, and asthenopia after careful correction had been made, that he has formed the habit of designating on his record cards this class of cases by the term, atomic asthenopia. He nearly always finds that these conditions are caused by an unwise use of the eyes. A person gets interested in a piece of fancy work or a novel and continues in spite of Nature's warning until forced to desist by symptoms of incapacity or discomfort. The clerk or shop girl is obliged to work the eyes a given number of hours, often at fine work, under unfavorable conditions, and breaks down. She goes to an oculist, who corrects the error of refraction she may have, she resumes work and breaks down again and is obliged to quit. The scholar in the lower grades lays the foundation of trouble by holding the book too close, thus often doubling the accommodation strain. The oculist finds a small error, which he corrects with glasses, and neglects to discover the cause; the child persists in this vicious habit of holding the book too close and permanent asthenopia is the result. The student with refraction corrected who is ambitious to do three hours' work in two taxes his visual powers by long hours of uninterrupted eyestrain, under faulty conditions, and develops photophobia and congestion, wears colored glasses, and persists, ultimately to find himself with permanent asthenopia. These cases, Dr. Prince calls atonic and he advises the patients

to work at normal range and to interrupt every five minutes with ten seconds rest. They often get along and do a creditable amount of work, but are obliged to exercise care in the use of the eyes. Overtaxation results in a setback, which compels renewed rest and prudence. He asked Dr. Valk and the members of the section if they meet these cases, and if they discover refractive or muscular errors, the correction of which does not remove the symptoms of asthenopia. Regarding the second proposition, he said that he thinks Dr. Valk expresses the modern tendency of thought relative to tenotomies. Dr. Prince takes the middle ground. He first favors advancement, in all cases, either heterophoria or strabismus, and later performs tenotomy when indicated. This procedure is rational and the results are better.

Dr. Oscar Wilkinson, Washington, D. C., stated that three years ago he began a very extensive study of his series of asthenopic cases. He treated the patients first under homatropin, examined them before and after, its use giving the correction, eliminating muscular defects, and when they returned with still some symptoms he used atropin. Out of a series of fifty cases he has found what he terms astigmatic accommodation in five cases. This was usually found with the use of atropin after from 3 to 6 days. He has had these patients use atropin as long as ten days before the full amount of astigmatism was shown. These cases with full correction have been relieved entirely. Dr. Wilkinson believes that in our haste to get through with our work we often pass over our asthenopic patients without a sufficient number of examinations. He believes that the ordinary use of homatropin will not bring out the accommodation, if there is latent astigmatism with hypermetropia; we must use atropin. In Washington, where so many patients are clerks who go to school at night, there is an unusually large number of people suffering from eyestrain according to the population, and the loss of ability to use their eyes means more to them than to ordinary individuals.

Dr. G. M. Gould, Philadelphia, declared that we have come to a blind alley in this matter and that each one differs from the other. He asked if there are any two or ten prescriptions which agree for glasses independently given which agree in the diagnosis of one patient's error of refraction. He does not think so. He has hardly ever seen prescriptions which agree with each other or with his. Ophthalmologists must come to some sort of an agreement, he said, or make the specialty ridiculous. They must get down to a basis of truth and do away with this ever recurring disagreement with each other. The only way to do this is to have an endowed and recognized optical refraction school. By disagreements and neglect, he said, ophthalmologists are producing quack optical and refraction schools.

Dr. Leartus Connor, Detroit, said that he daily sees the work of fellow ophthalmologists with which he absolutely agrees, and that he has done so ever since he began the practice of ophthalmology. Therefore, he said, the practice of ophthalmology in Detroit and in that part of the country is not a bedlam. Further, he said that an increasing feeling of agreement comes with years of experience and with our appreciation of what the other fellow has done, but that it will never be brought about from *a priori* ideas; it must be founded on observation, proper deductions from such observations and practice based on that. It is simply carrying out the laws and principles taught by Morgagni more than a hundred years ago, on which all scientific medicine has been based. A special school to teach refraction from *a priori* reasoning is not needed, he said, but every fact must be accurately recorded and the efforts of one man placed in possession of others, and as they have the same eyes, the same reasoning powers, and the same desire to benefit patients, so will there be a unity. Dr. Connor thinks that there is a substantial unity in ophthalmology, as much so as in any other part of medicine or any other profession. He does not think that ophthalmologists need be afraid that they are not progressing, or progressing in the right way, or that they do not have the respect of intelligent men in and out of the profession everywhere.

Dr. G. C. Savage, Nashville, said that notwithstanding what Dr. Connor has said, he thinks that there is difference in results and that this depends on the difference in methods. When all can have the same methods all will have the same results.

Dr. Francis Valk, New York, said that he hopes the day will come when physicians will be so advanced in refraction examination that by objective methods they can fit glasses without asking their patients any questions whatever.

CONJUGATE LATERAL DEVIATION.*

J. H. CLAIBORNE, M.D.
NEW YORK.

It seems a well-established fact that all the movements of the eyeball which are innervated from the cerebral cortex are associate or conjugate. It also seems well established that lateral conjugate movements of the eyeball can be effected through stimulation of the center for the sixth nerve, or on the floor of the fourth ventricle. Of the associate or conjugate movements of the eyeballs, the lateral ones are the most extensive; and this is consistent with the fact that the human being can move about on a plane surface to an extent which is limited only by physical obstruction or the deficiency of his motor apparatus.

Dangers which threaten the human being come, as a rule, in the nature of things, from some direction in the plane on which he stands. They rarely come from above, and more rarely still from below. The associated movements of the eyeball downward are much limited, and those upward still more so. All movements of the eyeball that are conjugate are assisted and supplemented by the movement of the head, and it is evident that the movements of the head to the right and left are greater than in other directions. These reflections bear directly on the importance of the conjugate movements in general, and particularly those to the right and left.

Prevost first pointed out the significance and importance clinically of conjugate deviations of the eyeballs as a symptom of apoplexy; but this is a fugacious symptom and passes in a few hours, because in the first place it is a distant symptom and, in the second, the sound side of the brain probably learns to perform the duty of the stricken side. As will be shown in a case later to be cited, localization from conjugate deviation is uncertain, both on account of its transitory character and because the position of the cortical center for associate movements is not yet established.

Landouzy, Wernicke and Henschen, from clinical and postmortem study, have located the center in the inferior parietal lobe. Munk arrived at the same conclusion from experimental study. Ferrier, on the other hand, observed conjugate deviation from electrical stimulation of the angular gyrus, but, as this experimenter at that time thought the angular gyrus the center of vision, he concluded that the reaction obtained was in the nature of reflex from the visual center to the oculomotor center. Ferrier, together with Horsley and Beevor, have placed the center in the second frontal convolution.

Schaeffer and Munk more recently found that faradization of one visual center caused conjugate movements of the eyes to the opposite side, and Munk showed that this occurred even though the association tracts between the visual and what he regarded as the oculomotor cen-

* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-seventh Annual Session, June, 1906.

ters were cut. From this he concluded that involuntary fixation of the eyes on the stimulation of light is caused by a reflex to nerve nuclei from the visual center and through the optic radiations. Knies has also put forward some interesting views to show that the cortical center for vision is also the cortical center for voluntary conjugate motions in so far as they are caused by a conscious visual impression, and supports this view by an elaborate scheme. By the same scheme he also shows how auditory and tactile sensations likewise may produce voluntary associate motions. Even in the case of Wernicke, in which a lesion of the inferior parietal lobe caused conjugate deviation, Knies thought that the close proximity of the inferior parietal lobe to the visual cortex was sufficient to have produced the deviation. It appears that this amounts to subsidizing a fact to support a theory.

It appears that conjugate lateral paralysis is the only form of associate paralysis which can be caused by primary nuclear disease. The vertical forms of conjugate paralysis have in the main been associated only with tumors of the corpora quadrigemina. Gowers, Thompson and Steffen have reported such cases. This symptom also is regarded as distant, and does not necessarily imply that a center exists in these bodies like to that in the nucleus of the sixth nerve for conjugate lateral movements; but it seems clear that tumors of the corpora quadrigemina in some indeterminate way act on the nuclei for associated upward and downward movements so that their power of innervation is eliminated or modified. These paralyses of the lateral associated movements of the eyeballs necessitate the existence of fibers passing from the nucleus of the third nerve to the other side, which fibers, of course, are destined only for the internal rectus of that side. It is interesting to know that this conclusion is justified by the findings of Graux, who has demonstrated the existence of these fibers. They are properly called associate fibers, for it is by means of them that the associated movements to the right and left are accomplished.

AUTHOR'S CASES.

I have observed two cases of lateral deviation. One, I believe, was the result of irritation; the other, of destruction.

Case 1.—A man, aged 40, was attacked by an acute otitis media.

History.—He suffered great pain and the drum-head burst of itself within twelve hours. The pain in the ear was relieved, but the head pain not only did not lessen, but became worse and began to radiate over his forehead toward the opposite side. His symptoms increased in severity and his pulse gave indications of meningitis. After twelve hours of intense suffering he became unconscious and comatose, with puffing respiration. His right leg was flexed on his thigh, the thigh on the abdomen, and both were inclined toward the median line. His forearm was flexed on his arm and his hand was in the classical position of *La Main en Griffe*, his thumb pointing toward his palm. At the same time his eyes and head were turned toward the left, the right eye being turned inward further than the left eye outward.

I saw him twenty-four hours after the rupture of his drum; the mastoid was normal, and I was not able to convince myself that it was tender on pressure. There was a large opening in the drum downward and outward, from which pus slightly tinged with blood flowed freely. I was in a quandary as to the diagnosis. The contraction of the leg, arm, and hand pointed to an irritative lesion of the left cortex, and the deviation of the eyes to the left pointed to an irritative lesion on the right side or a destructive one on the left. Meningitis was diagnosed, but in view of the conditions of the mastoid and the rapidity of the attack I could not bring myself to believe that the middle ear was the cause. This view was strongly fortified by the contractions of the right hand, arm and leg. It was assumed that there was a lesion of the left cortex, indeterminate in character, and that a general meningitis was present. In several hours the deviation to the left had disappeared, and subsequently the eyes deviated to the right. At the same time his head no longer pointed toward the left, but did not point to the right. The possibility of infection from the mastoid was again entertained, but the quandary was not removed. In the meantime the man was moribund, and died about fifty-two hours from the time of his attack.

Postmortem.—The postmortem was most interesting. There was a general purulent pialmeningitis, most marked on the right side and over the frontal region, but absolutely general. There was no lesion in the left cortex, none in the right, nor any in the ventricles. There were, however, petechial hemorrhages, very fine in character, on the anterior aspect of each middle lobe. On removing the brain from the calvarium a red spot was seen on the tegmen tympani of the right temporal bone, just short of where the wall rose to form the parietal boundary. A hairpin thrust through this small opening entered the mastoid cells and could be pushed into the antrum. The petrous portion of the temporal bone was removed by a chisel and the cells of the entire antrum, though fresh and clean in appearance, were completely filled with thick yellowish pus. It seemed in the highest degree probable that this hiatus was a congenital one, because the process had not continued long enough to produce destruction of the bone.

This region must have been rapidly invaded by the pus after its entrance into the fossa, and it is my opinion that the primary deviation to the left was due to the irritation of the pus on the right inferior parietal lobe. When the pus passed over to the opposite side the fresh irritation not only relieved the original deviation but caused the eyes to deviate to the opposite side.

This at least is consistent with the view that the inferior parietal lobe is the cortical seat for conjugate lateral movements, and it is obvious that these reflections support the view of Landouzy, Wernicke and Henschen as to the location of the cortical center of the lateral conjugate movements.

Case 2.—This case is quite as interesting, though the drama has not yet been closed by a postmortem. A tall, heavy, strong South German, aged 37, had syphilis five years ago. He apparently recovered from all signs of it under treatment, and about a week before I saw him (Oct. 25, 1905) he suddenly noticed something peculiar about his eyes. On being questioned he stated that he did not see double, but noticed that his forearm, hand and leg seemed numb, and that he could not use his hand well in his work, which was that of a baker. These symptoms passed away rapidly. On being questioned further concerning the double vision, he said that he saw single except occasionally when he was returning from work at 8 a. m. He was accustomed to go to his work at 3 a. m.

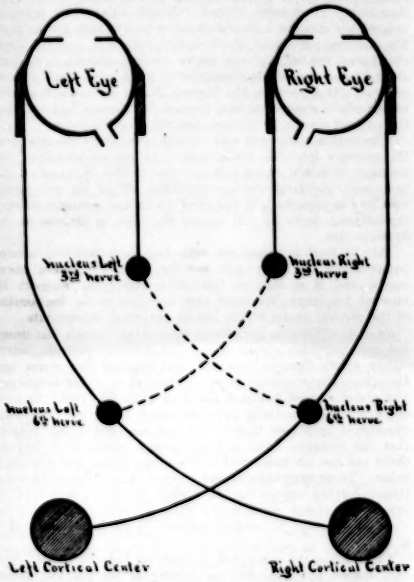
Examination.—I examined patient on Oct. 25, 1905. His eyes stared, but there was no lagging of the lids and downward movement. Both eyes were turned distinctly to the left; at times this was more marked than at others. The right eye looked in further than the left looked out. The power of convergence was present and seemed to be normal, the convergence being equal in the two eyes for a given point. He could not be made to see double in any part of the field, even with the red glass test. The pupillary reflexes in the fundi were normal. The fields were normal, and the vision in each eye was practically normal, with the correction of a slight refractive error. In walking he habitually carried his chin toward the right shoulder. There was no difference in sensation to the prick of a pin in his hands, arms and legs, but his grip appeared to be a trifle weak. There was no Romberg and apparently no difficulty in orientation, although his walk suggested slight ataxia. The patella reflex on the left seems a trifle increased; on the right side, normal.

Treatment.—The patient was put on increasing doses of potassium iodid, but could take no more than 50 gr. three times a day. He has continued the iodid of potassium in the

stated dosage to this date, Dec. 13, 1905. The eyes appear to be straighter in general than before, but when the left eye arrives at the median line the right eye still appears to incline inward. Patient says he feels much better and does not have to carry his head so much to the right in walking, but he is not yet able to carry his eyes beyond the median line to the right. He finds that the fingers of the left hand are still somewhat stiff and clumsy in his work. There is no difference in sensation between the two hands.

REMARKS.

It is evident that this case is one of conjugate lateral paralysis, the lateral movements to the right being paralyzed. Practically all the signs and symptoms of a classical case of conjugate lateral paralysis are to be seen here, and what is marked and distinct is that the paralysis of the external rectus of the right eye is more pronounced than the paralysis of the internal rectus of the left eye. This is entirely consistent with the generally recognized view that the center of the sixth nerve is the commanding one in lateral associated movements. That this is not a true paralysis of the internal rectus muscle is clear from the fact that the convergence is practically normal. This is eminently the fact in the case under discussion; therefore, none of the fibers for true convergence are influenced, but only those for associated movements to the right.



It is interesting and instructive to consider for a few moments the mechanism of spasmodic and paralytic deviation from the standpoint of the different locations of the lesion. By reference to Figure 1 it will be seen that in either case paralytic or irritative deviations may be due to a lesion either in the cortex or in the nucleus. If, for example, the lesion be destructive and lie in the left cortical center, it is obvious that there will be a deviation of the eyes to the left. If, in like manner, the lesion be a destructive one and in the right cortex, there will be a deviation of the eyes to the right, so that the eyes will look to the side of the lesion when it is destructive and cortical. If, however, the cortical lesion be an irritative one and lie in the left cortical center, the eyes will deviate to the right. If an irritative lesion lie at the right cortical center, the eyes will deviate toward the left. Therefore, in destructive cortical lesions the eyes look toward the lesion; in irritative cortical lesions the eyes look away from the lesion. When the lesion lies in the nucleus, it is clear that these conditions are reversed. Let us suppose a destructive lesion at the nucleus of the left sixth nerve. The external rectus of the left eye would thus be paralyzed, and the internal rectus of the right. The eyes will, therefore, look to the right; in other words, away from the lesion. If, in like manner, the destructive lesion be at the nucleus of the right sixth nerve, the external rectus of the right eye and the internal rectus of the left will be paralyzed and the eyes will look to the left; in other words, away from the lesion. An irritative lesion of the left sixth nucleus will cause a movement obviously to the left; the eyes in this case will look toward the lesion. An irritative lesion of the nucleus of the right sixth nerve will cause the eyes to look to the right, or toward the lesion.

It now becomes of interest to settle the probable position of the lesion in the case we have before us. The deviation here is to the left, and it is a paralytic deviation. It can not, therefore, be an irritative right cortical lesion, because there is paralysis; but it might conceivably be a destructive lesion of the left cortex; for, as we have seen, that lesion will produce deviation to the left.

It will be remembered that there was a transient left hemianesthesia and hemiplegia that would necessitate the existence of the lesion on the right; and, since the deviation in this case is to the left, it is obviously not a destructive lesion of the right cortex, for that would produce a deviation to the right. We are, therefore, forced to the inevitable conclusion that the lesion is a destructive one and lies at the nucleus of the right sixth nerve. The sixth nerve, or abducens, originated mainly from a mass of gray substance on the floor of the fourth ventricle near its widest part, at a point practically corresponding to the posterior border of the pons varolii. From this point the fibers pass downward and forward through the tuber annulare to the posterior edge of the pons varolii, where they may be seen on the base of the brain. Hence, it runs along the wall of the cavernous sinus and through the sphenoidal fissure to the eyeball. If the lesion in this case be not absolutely at the point of origin of the sixth nerve, at least it is somewhere in the immediate vicinity and is above the decussation of the pyramids. The hemianesthesia and hemiplegia, fugacious as they were, distinctly implied that the motor and sensory fibers for the left side were involved. Whether or not the hemianesthesia and hemiplegia were restricted to the left arm and leg and did not involve the rest of the left side is not obvious from the history; but that the lesion was syphilitic there can be no doubt in the face of the history given. It is a fact that there was no hemiplegia present, nor can I clearly see how it might have occurred, if the lesion be truly on the floor of the fourth ventricle. A cortical lesion associated with hemianesthesia and hemiplegia might have been accompanied by hemianopsia.

The following are the salient features of this case:

1. Conjugate lateral paralysis, with deviation to the left.
2. Fugacious hemianesthesia and hemiplegia.
3. The location by exclusion of the lesion at the nucleus of the right nerve.
4. The absence of hemianopsia.
5. The obvious predominance of the external rectus as opposed to the internal rectus.
6. The retention of normal convergence.

It has been said that simple abducens paralysis may be caused by a nuclear lesion, but if it be true that a lesion of the sixth nucleus causes conjugate lateral paralysis, then lesion of this same nucleus can not cause simple abducens paralysis, and the so-called nuclear paralysis of the sixth nerve must be due either to a lesion in the efferent fibers from the nucleus to the external rectus (Bennett and Saville) or to a lesion of the communicating fibers (Knies).

I think it unwise in describing the position of the eyes in cortical and nuclear lesions, whether irritative or destructive, to make any reference to the paralyzed side, since the paralysis is obvious. It is better to define the direction of the eyes by reference to the seat of the lesion. I suggest the following arrangement:

Irritative lesions { Cortical: eyes look away from lesion. / Nuclear: eyes look toward lesion.
Destructive lesions { Cortical: eyes look toward lesion. / Nuclear: eyes look away from lesion.

34 West Thirty-sixth Street.

DISCUSSION.

Dr. Mark D. Stevenson, Akron, Ohio, said that muscular spasms due to irritation, and paralysis due to destruction, point to the same local diagnosis. Paralysis may be due to a peripheral, nuclear or central lesion. Conjugate paralysis must be nuclear or central. In nuclear paralysis there is suspension of voluntary and involuntary movements, and the nerve and muscle degenerate at an earlier or a later period. In destruction of a part of the cerebral cortex every other part is more or less implicated apart from the destruction of the lower groups of ganglion cells, but certain voluntary and involuntary reflexes are retained. It is stated that the third nerve nucleus contains the nuclei of those muscles which turn both eyes to the opposite side, viz., internal, superior and inferior recti of the same side, and the inferior oblique of the opposite side, which is supplied by fibers passing over to the nerve of the opposite side. Convergence is supposed to be controlled by a central collection of nerve nuclei common to both sides, whereas the internal rectus in conjugate movements of both eyes is controlled by a collection of nuclei which are connected with the nucleus of the opposite sixth nerve. Central paralyses, Dr. Stevenson said, are not complete. The nerve fibers passing from the cortex to the nuclei do not run in bundles nor originate in any circumscribed part of the cortex, so that anatomic demonstration of their course is almost impossible. Optic and motor fibers freely intermingle in the cortex and cornea, but the motor fibers are more segregated near the nerve nuclei, and, therefore, lesions in this neighborhood readily cause motor symptoms. Knies states that cortical spasms affecting the eye muscles are always conjugate; that conjugate deviation toward the opposite side can occasionally be obtained by irritation of many parts of the cortex, especially from the visual sphere of the occipital lobe. Knies also says that the deviation of the eyes depends on the distance from that part of the visual cortex which controls the macula. The visual spheres are connected by associative fibers with the temporal, parietal and frontal lobes. These associate fibers pass through the inferior parietal convolution. Voluntary ocular movements and involuntary movements due to other stimuli—e. g., tactile and auditory—can take place, Dr. Stevenson said, when the associative fibers to the visual sphere of the motor cortex are divided: therefore there must be associative fibers not passing through the visual cortex or corona radiata. It is interesting and instructive, he said, to study the various sources of fibers to the nuclei of the ocular muscles and the various motor phenomena following destruction of the visual cortex.

Dr. William Zentmayer, Philadelphia, in referring to Dr. Claiborne's statement that conjugate lateral paralysis is the only form of associate paralysis which can be caused by primary nuclear disease, said that the vertical form of conjugate paralyses have in the main been associated only with tumors of the corpora quadrigemina. In a case recently reported by Dr. Zentmayer, in which there had been a paralysis of the upward movement of both eyes, diplopia manifested itself during recovery, and it was found to be due to the fact that the superior rectus of one eye remained palsied after the other muscles had recovered. This pointed to a nuclear lesion. Spiller has made a study of these cases and concludes that "all the pathologic evidence that he has been able to find in cases of persistent palsy of the associated upward and downward movements is indicative of a lesion near the aqueduct of Sylvius, i. e., in the vicinity of the oculomotor nucleus."

Dr. Alexander Duane, New York, said that Dr. Claiborne has adopted the theory of Graux that the fibers of the posterior longitudinal bundle decussate so that the abducens nucleus of one side is connected with the oculomotor nucleus of the other. As Bernheimer says, there is no anatomic foundation for this view of Graux's and the clinical facts are better explained by the actual anatomic conditions which Bernheimer has worked out and which are as follows: The fibers from the left abducens nucleus run to the left (not to the right) oculomotor nucleus and there are connected with a certain portion A of the partial nucleus for the internal rectus. The efferent fibers from A decussate, that is, pass from the left oculomotor nucleus into the right oculomotor nerve, and supply the internal rectus of the right eye. It is in this way, and not by any hypothetical decussation in the pons, that the action of the left externus and of the right internus are correlated so as to effect a left-hand rotation of both eyes. It must be noted, Dr. Duane said, that conjugate deviations may be simulated, the patient failing to move the eyes in the given direction, simply from lack of will. He has seen one such case which persisted for years. Such cases can usually be unmasked, he said, by using Graefe's test. Suppose, for example, a patient is apparently unable to move either eye to the right. The physician places before each eye a prism of say twenty degrees, with the apex of each directed to the right, and directs the patient to fix a small object straight in front of him. If the patient is, consciously or unconsciously, simulating, both eyes will be seen to turn to the right behind the prisms and will make a jump back to the left when the prisms are withdrawn. In true conjugate paralysis the eyes will make no attempt to move when the prisms are put on or taken off, and when they are put on the object will at once become indistinct because no longer seen with central vision.

ACUTE LYMPHATIC LEUKEMIA. SOME CLINICAL OBSERVATIONS IN A CASE SUGGESTING INFECTION AS AN ETIOLOGIC FACTOR.*

PHILIP MARVEL, M.D.
ATLANTIC CITY, N. J.

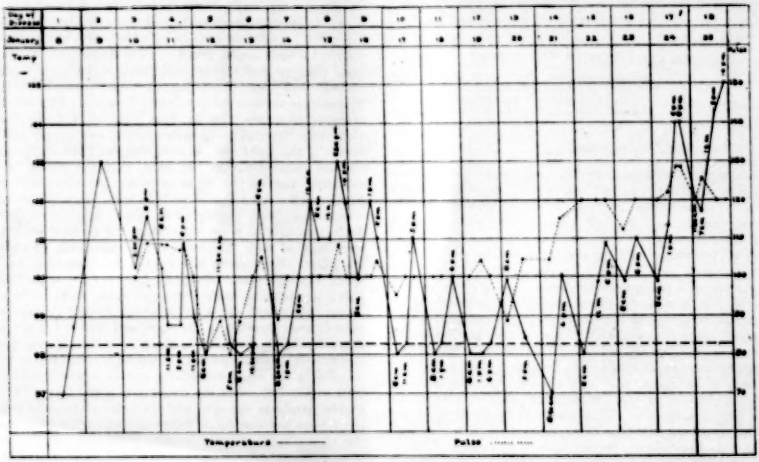
Notwithstanding the great progress made in hematology in recent years, the etiology of leukemia still remains in doubt. A review of the rapidly accumulating literature on the subject affords but little more than the clinical observations to substantiate any claim which has been assumed to be the cause of this important disease. Stengel[1] has well stated that one who has seen a number of cases of acute leukemia will not wonder at the persistence with which investigators and clinicians hunt for a

* Read in the Section on Practice of Medicine of the American Medical Association, at the Fifty-seventh Annual Session, June, 1906.

1. Nothnagel's "Encyclopedia of Practical Medicine," American edition.

microbic origin. If we accept Löwett's theory of "protoplasm-like forms" as the etiologic factor of the disease, then we succeed in bridging the chasm which now exists between blood findings and clinical observations, but, unfortunately his investigations are as yet *sub judice*.

The morbid phenomena of acute infectious disease, e. g., chill, rapid rise and fluctuation of temperature, accelerated pulse, cardiac irregularity, vomiting, diarrhea, diminished urinary secretion, toxic depression, cutaneous leakage, dyspnea, glandular enlargement, progressive anemia, general debility, hemorrhagic diathesis, etc., have impressed me with their strong resemblance to the clinical manifestations of the case of acute lymphatic leukemia or lymphemia which I have to report, and it is to this strong resemblance that I wish to call special attention; but before doing so, let me briefly refer to the anatomy and physiology of the faucial tonsils, which apparently were the chief, if not the primary points of attack in the case in question and which bear a relational comparison to the cases to which reference is to be made.



ANATOMY AND PHYSIOLOGY OF THE FAUCIAL TONSILS.

The tonsils, situated between the anterior and posterior pillars of the fauces, on each side of the pharynx, are analogous in most respects to the lymphatic glands and differ mostly in having furrows or crypts, which communicate with the buccal cavity. Their length and breadth are usually 20 mm. and from 12 to 15 mm. respectively, but vary greatly on account of the frequent inflammatory enlargements which occur. The activity of the faucial tonsils is said to precede the latter part or end of fetal life, which has been demonstrated by the multiplicity of lymphocytes in the follicles and by the infiltration of leucocytes into the overflowing epithelium.[2] The tonsils are largely developed by the end of the first, but do not reach complete maturity previous to the fifth year; the blood supply is unusually large and affords great activity. They are covered with mucous membrane and in early life are sparsely supplied with connective tissue; hence, when hypertrophied during childhood and early adult life, there is little or no increased resistance occasioned by the connective tissues, as contrasting with a growing immunity against infections in advancing age by a thickening of the capsule.

The first fact which presents itself in the physiologic study of the functions of the tonsils, is that they are definite organs, actively engaged in the production of lymphocytes. The follicles contain germ centers in which lymph cells may undergo a mycotic change and also afford a free passing of the lymphocytes directly into the lymphatic circulation and through the mucous membrane into the mouth. These organs contain numerous efferent as well as afferent lymph vessels and are responsible for a large outflow of lymph. A large number of the cells which normally pass out are lymphocytes and form the salivary corpuscles. There are also varying numbers of leucocytes that pass from the blood at the same time. In examining secretions collected, even from the non-inflammatory mucous membrane of the tonsils, in addition to epithelium and micro-organisms, we find leucocytes as well as lymphocytes and not infrequently many bacteria in the former. Whether these secretions are to be regarded as physiologic or pathologic I am unable to decide, but from the foregoing it is obvious that their situation, anatomic construction and physiologic function predispose them to easy primary infection and very likely secondary transference of bacteria and toxins through the lymphatic and circulatory streams to other structures. It is not without interest in this connection that reference is made to the coincidence, that infections much more readily occur in childhood and early adult life than in advancing or mature age, which is equally true of leukemia, especially of the acute lymphatic form.

CASE REPORT.

In submitting this case for your study I wish to apologize for the minute detail which follows and for the omission of a more thorough and exhaustive study of the blood. The former is admitted that you may become acquainted with the symptoms in their probable relations to the disease manifestation, as they occurred, and the

2. Strohr: Zur Physiologie der Tonsillin," Biol Cultib, 1882, vol. ii, No. 12.

latter was unavoidable, because the patient and the aunt in whose charge she was were neither concerned in the scientific study of the disease and persistently refused to permit blood specimens to be taken. No family history of any importance was obtainable, as both parents died when the patient was quite young.

Patient's History.—The patient, a girl, aged 14, had been robust and healthy until four years previously, when she had pneumonia, complicated with acute nephritis. She was dangerously ill for a number of months, and owing to the severe toxemia, disturbed metabolism and profound debility which followed, her condition resembled idiocy during the greater part of her protracted convalescence. About a year later she was operated on for the removal of a portion of the faucial tonsils and for pharyngeal adenoids, after which her condition improved rapidly until she was again considered healthy and well developed.

On returning from school Nov. 27, 1905, after the usual exercises in the gymnasium, she complained of an acute pain in her left thigh. Her physician was consulted, but found no evidence of an injury and regarded the pain as a simple muscular one, possibly of rheumatic origin. The obstinacy with which this pain persisted at the time led him to regard it as arising from a different, yet unknown cause. A consultation was held with a neurologist, who also was unable to determine any evidence of a serious or well defined disease or important functional derangement. Owing to the absence of definite or pathologic evidence only general directions, including withdrawal from school, outdoor life and pleasurable recreation were prescribed.

She began regularly and normally menstruating at the age of 12, and had proceeded without irregularity until Dec. 10, 1905, when menorrhagia began and continued more or less profusely for five weeks.

Improvement having failed after withdrawal from school, she was sent to the seashore for tonic treatment. During the past month, coincident with the uterine hemorrhage, anemia had progressed rather steadily and was now sufficiently marked to be readily observed. When first seen, she had been at the shore for several days, spending the greater part of the time in the open air, with no evidence of disease, save that of the anemia above mentioned, which was easily noticeable.

Physical Condition.—On Jan. 8, 1906, I saw her shortly after the occurrence of a severe chill, followed by rapid rise of temperature, and observed that she was suffering from an acute tonsillitis, accompanied by a mild pharyngitis. The vault of the throat was red and the tonsils were enlarged and swollen with bacterial spots in and about the crypts. Temperature was 103, pulse 120, the cheeks were flushed. The patient complained of severe headache, with pains in the back and limbs, manifesting the ordinary symptoms often observed in follicular tonsillitis. There was no special mention of the pain in the left hip, except to refer to the incident. A smear was taken from the tonsillar surface and showed the absence of Klebs-Löffler bacillus, but numerous streptococci. No cultures were made.

Examination of the chest revealed nothing abnormal in the pulmonary sounds save a puerile breathing in the axillary line of the lower lobe of the right lung, a soft, systolic murmur was heard loudest over the base. Her appearance and symptoms were similar to those commonly observed in tonsillar involvement and apparently progressed favorably under treatment.

Course of the Disease.—On January 10 a blood examination was made with the following report: Hemoglobin, 45 per cent.; reds, 3,865,135; whites, 5,758; small mononuclear lymphocytes, 26 per cent.; large mononuclear lymphocytes, 8 per cent.; transitional, 0; polymorphonuclear, 66 per cent.; eosinophiles, 0; number counted, 500.

On January 11, at 8 a. m., 12 m., and 6 p. m., respectively, the temperature ranged 100, 98.4, and 99, and at the same hours the pulse was 99, 100, and 100. From this date until January 15 the temperature and pulse ranged very much the same and the excretions from the bowel and urinary tract continued about normal.

On January 12 the throat appearances were much better and the patient was comfortable. Examination of the urine showed the following: Acid reaction, specific gravity, 1012, trace of albumin, no sugar, increase in the quantity of uric acid, a few leucocytes, and a few large granular casts. Subsequent examinations, with the exception of an increasing amount of uric acid, were practically the same.

January 13: The patient complained of some pain in the back and abdomen, but made little account of it. She sat up both morning and afternoon, but was very restless and nervous toward evening. She slept rather poorly during the night and talked much in her sleep.

January 14: The patient sat up most of the day, was less nervous, and slept at intervals, in all, about three hours. The throat was better, though the right tonsil continued swollen and darkish-red in color, having much the appearance of a tonsil with an indolent quinsy or post-tonsillar abscess.

January 15: The patient complained of a feeling of extreme weakness and later in the day was greatly prostrated. She was very nervous and restless during the night, slept poorly, and awakened the next morning complaining of stiffness on the right side of the neck. Temperature at 8 a. m., 12 m. and 6 p. m., respectively, was 101, 101, and 103; pulse was 100, 100, and 108. Examination of the neck showed the cervical glands tender and slightly swollen. Bowel movements were constipated; urine passed was about 33 ounces.

January 16: The temperature ranged between 99.4 and 101, and pulse 100 and 104. The bowels were relaxed as a result of the administration of oil. Simultaneous with the swelling and tenderness of the glands of the neck an abnormally large quantity of mucoid secretion was discharged from the nose and mouth. The patient complained of left side of the neck being tender.

January 17: The patient had a good night, seven hours' sleep. She still complained of pain in the back; the left side of neck was stiff and sore. There had been no evacuation from the bowels; 29 ounces of urine were passed. The temperature ranged from 98 to 101, and the pulse from 90 to 100; respiration, 24.

This covered the maximum rise of temperature and pulse from January 17 to January 23, inclusive. Evacuations from the bowels continued normal in appearance each day until January 18, when they were semi-fluid, but were solid again on the following day. The cervical, submaxillary and subclavicular glands showed positive enlargement and were tender; mostly so on the left side.

January 18: The glands on both sides of the neck were more swollen and tender and were easily palpable. The patient complained of extreme weakness; she slept at short intervals and seemed restless.

January 19: The patient slept fairly well during the night and awakened feeling stronger. She sat up in the chair at intervals, for three hours during the day and enjoyed a sun bath.

January 20: The patient had a fairly good night, but awakened with an unpleasant taste in the mouth. She sat up a very little during the day. There was some evidence of gastro-intestinal disturbance; vomited a quantity of mucus, and later in the evening undigested milk curds. She slept for short periods only, till after 2 a. m.

From this date until January 26 the gastrointestinal tract showed decided irritability and was but slightly if at all controlled by sedatives and astringents.

January 21: The glands of the neck remained swollen and enlarged; the parotids and lower lobes of the thyroid were perceptibly so; also the glands in the axilla and groin. Petechiæ were observed over the lower portion of the abdomen and on the outer sides of the thighs, as well as on the posterior portion of the trunk. The bowels were very much relaxed, with frequent movements. The patient complained of being very tired and extremely weak. Pulse was weak and easily compressed. She was frequently nauseated and occasionally vomited, but slept during the greater part of the night.

January 22: The patient awakened pale, and continued extremely weak. A second blood examination was made, with the following results: Number of cells counted, 1,000; lymphocytes, 98.6 per cent.; polymorphonuclear, .8 per cent.; eosinophiles, .3 per cent.; mononuclear, .2 per cent.; transitional, .1 per cent.

There were a number of normoblasts; the red cells were

small and showed considerable poikilocytosis. The lymphocytes varied in size, but the majority were larger than normal. The number of reds and whites and the hemoglobin were not taken at this time, for after the spreads were made, the patient's aunt refused further specimens. However, the smears evidenced a very large relative increase in the number of white cells.

The bowels continued relaxed, with frequent watery movements; the urine passed at the time of stools was estimated to be about 20 ounces. The spleen and liver were enlarged and slightly palpable. The patient continued to vomit and had pain when at stool. She slept at intervals only, waking every hour or so during the night. The pulse continued weak and the girl was very pale and disinclined to be interested.

January 23: The bowel movements continued loose and contained a small quantity of blood. The abdomen was slightly distended in the lower third. The urine continued to be secreted in less amount than normal, though fair quantity. Vomitus contained blood.

January 24: The patient awakened very weak and sweating profusely, after a very disturbed and restless night, with little sleep. She had no appetite, constant blood-stained expectoration, some cough, and blood was oozing from the gums. Temperature ranged from 99.4 in the early morning to 101 at noon, and to 104 in the evening. The pulse at the same hours was 120, 120 and 128, and respiration 28. Bowel movements continued loose, with nausea and occasional vomiting in the evening. Both stools and vomitus contained a considerable amount of blood. Petechiæ increased over the abdomen and upper portion of the trunk, arms and limbs. There were some ecchymotic or purpuric areas on the thighs, abdomen and back. Both spleen and liver were now much enlarged and easily palpable, the former measuring two inches and the latter two and one-quarter inches below their normal marginal lines. The patient slept only at intervals, and was very restless and nervous; she complained of extreme weakness; the face was edematous and the features were distorted. Temperature at 8, 12 and 6 was 101.3, 103 and 104, and at 10 p. m., 105; pulse, 120, 126, 120 and 120; respiration, 26, 26, 36 and 40. Bowel movements continued frequent and fluid, with less evidence of blood. Vomiting continued occasionally and the vomitus still contained a small quantity of blood. There was oozing from the gums and mucous membrane of the mouth and hemorrhages had occurred in both scleræ. The girl was very restless and the mental agitation was followed by marked delirium. The pulse became very feeble and death occurred early on the morning of January 26, from pulmonary edema and asthenia.

REMARKS.

It is to be very much regretted that in this most interesting clinical case an autopsy was not obtainable. The special features to which attention may be drawn are first, the undefinable cause of the pain in the leg being the first noticeable evidence of the disease (if this is to be regarded as the primary involvement). Second, the slowly progressive anemia coincident with menorrhagia. Third, the acute attack of tonsillitis on January 8, and its relation to the subsequent enlargement of the lymphatic glands of the neck, face, axilla and groin, with the thyroids, liver and spleen. Fourth, the absence of pathogenic change in the blood cells as evidenced by the hemanalysis made on January 10 till some time between this date and January 22, when the second specimen was studied.

Clinically supporting the diagnosis are the following observations:

The rapidly progressing anemia, leucocytosis with conspicuous preponderance of lymphocytes, general debility, pathogenic change in the lymphatic glands, enlargement of the spleen, liver, and thyroids, early appearance of petechiæ, ecchymotic or purpuric areas, hemorrhagic dyscrasia, gastrointestinal irritation and, in the latter part of the illness, profuse sweating.

The clinical evidences pointing to infection in this case are striking similar to those recognized in scurvy (which of late is admitted by some authors to be an infectious disease), as well as in the sepses and other bacterial diseases, and a review of the cases of acute lymphatic leukemia previously reported shows a remarkably large percentage of tonsillitis associated with the earlier symptoms of the disease, though hitherto not considered important.

If we follow closely recent investigations in numerous systemic infections which have followed streptococcic tonsillitis immediately or very shortly thereafter, e. g., endocarditis, myocarditis, nephritis, arthritis, peritonitis, appendicitis, adenitis, pleurisy and a variety of conditions usually classified as rheumatism, we will acquaint ourselves with the fact that their probable relationship to the tonsillar infection is attracting more than ordinary attention, and if acute lymphemia (or lymphatic leukemia) be studied from the standpoint of a like relational involvement, which may and, I believe, does exist, this case becomes one of more than passing interest.

Reasoning *a priori*, the foregoing would seem strongly supportive of the position taken, viz., that following the acute streptococcic tonsillitis, occurring as the earliest definite manifestation in this case, if not the immediately causative factor, the streptococci or their toxins had much to do with the pathogenic change and subsequent behavior of the lymphatic and blood tissues and incidentally with the serious metabolic disturbance, functional failure and death which followed.

DISCUSSION.

DR. RICHARD C. CABOT, Boston, asked Dr. Marvel if in the stained specimen there was a total increase of whites, or whether, as in the first count, it was apparently normal.

DR. MARVEL replied that there was a total increase.

THE RELATION OF EXCESSIVE GASTRIC ACIDITY TO GASTRIC SYMPTOMS.*

J. DUTTON STEELE, M.D.
Associate in Medicine, University of Pennsylvania.
PHILADELPHIA.

It is a well-established fact that symptoms of gastric irritation similar to those of hyperacidity may occur not only when the acid of the gastric secretion is excessive, but often when it is normal or subnormal. Stockton[1] pointed this out in a paper read before this Association, in 1902, and explained the condition by assuming that there was a hyperesthesia of the gastric mucous membrane which caused it to be intolerant, not only of abnormally large amounts of acid, but often of a normal or subnormal amount, or, as he put it, persons without an excess of acid had symptoms of hyperacidity.

My object in presenting this communication is to confirm Stockton's observations and I propose going a step farther to show that excess of acid alone is not capable of producing the symptoms of gastric irritation seen in so-called hyperacidity. There must be some other condition present which renders the gastric mucous membrane more sensitive than usual, so that it can not stand an amount of acid that would be easily tolerated if the mucous membrane were in a normal condition. In order to determine what produces this hyperesthesia of the gastric mucous membrane I present an analysis of a series of cases with symptoms of hyperacidity.

* Read in the Section on Practice of Medicine of the American Medical Association, at the Fifty-seventh Annual Session, June, 1906.

1. THE JOURNAL A. M. A., Jan. 11, 1903.

HYPERACIDITY: SYMPTOMS AND CAUSE.

Before going farther it may be well to state exactly what is meant by hyperacidity symptoms. The most characteristic of them is the discomfort or burning, often amounting to pain, which comes on about the height of digestion one or two hours after eating, and is relieved by food, alkalies, liquids, or vomiting. There are other less constant symptoms, such as sour eructations, belching, excessive appetite and nervous manifestations, but the most important and characteristic one is that mentioned first. The simplest explanation of the peculiar pain of hyperacidity is that it is caused by an excessive amount of HCl in the gastric secretion. The pain comes on sometimes after eating, because, while there is food present in the stomach the acid unites with it and there is no accumulation of free acid. But as soon as the food has taken up all the acid that it can, then free acid accumulates and irritates the gastric mucous membrane. The pain is relieved by more food or alkalies, because by them the acid is neutralized; liquids and vomiting relieve it, because they dilute or remove the excess of acid. This very simple explanation of the causation of pain in hyperacidity ceases to explain when we find that the acidity of normal stomachs varies within very wide limits under the influence of locality, diet and modes of living and as the number of observations of normal gastric juice multiplies, the wider do these limits become. Thus the percentage of HCl in normal persons may run far beyond what we formerly supposed to be the upper limit of health and the same thing is true in patients with other diseases without gastric symptoms.

I have had three patients, two with total acidities over 60 and one over 70, in which there was no gastric or abdominal distress whatever. Stockton has repeatedly found high acidity, even to 100, without symptoms.

Kaufmann[2] in nineteen cases free from gastric symptoms found that ten of them had a total acidity above 70, and two over 100. Kaufmann also found that he could give HCl to healthy persons, thereby much increasing the total acidity without the production of hyperacidity symptoms. Geigel and Blass[3] report eight cases in which the total acidity was between 60 and 95, without symptoms. Gintls[4] in Riegel's clinic, examined forty patients without stomach symptoms. Three had achylia without symptoms. In the remaining 37

27 constantly over 60; 1 inconstantly.
17 constantly over 70; 1 inconstantly.
8 constantly over 80.
4 constantly over 90.
1 constantly over 160.

For HCl:

31 constantly over 30; 3 inconstantly.
27 constantly over 40; 2 inconstantly.
14 constantly over 50; 3 inconstantly.
4 constantly over 60; 1 inconstantly.
1 constantly over 70.

Schüle[5] found acidities above 60 in ten normal cases. Meyer,[6] Sorensen and Brandenburg[7] and Illoway[8] have made similar observations.

These show quite clearly that an excess of acid in itself is not sufficient to produce the symptoms of irritation in the condition that we call hyperacidity, but there must be in addition an intolerance of the mucous membrane for acids. From this statement it must not be inferred that HCl plays no part in the causation of the pain. The acidity of the gastric contents is a very important factor, for it is the direct cause of the irritation, although it can not produce this irritation unless the mucous membrane is unduly sensitive.

2. Zeitft. f. klin. Med., vol. lvii, p. 491.
3. Zeitft. f. klin. Med., vol. xx, p. 253.
4. Archiv. f. Verdauungs krankheiten, vol. iv, p. 251.
5. Zeitft. f. klin. Med., vol. xxviii.
6. Archiv f. Verdauungs k., vol. vi, p. 299.
7. Archiv. f. Verdauungs k., vol. iii, p. 377.
8. Archiv f. Verdauungs k., vol. viii, p. 103.

ANALYSIS OF CASES AND DISCUSSION.

The following analysis of thirty cases with hyperacidity symptoms shows very clearly that the irritation occurs, not only when the percentage of acid is high, but often when it is within the middle or lower grade. This would indicate that the mucous membrane was so hypersensitive that it was intolerant not only to high grades of acid but often to middle or low grades.[9]

	Upper above 60.	Middle 30-59.	Lower 0-29.	Total.
Retention	5	3	3	11
Hypersecretion	1	2	0	3
Indiscretion in diet	2	0	0	2
Pronounced neurasthenia	2	2	0	4
Fatigue and worry	3	0	3	6
Unknown	2	0	2	4
Male	11	4	5	20
Female	4	3	3	10

In about one-half of my cases the cause of the irritation and pain lay in the existence of decided gastric motor insufficiency or of hypersecretion. Kaufmann also found that these two conditions were important factors in the production of the form of gastric pain that has been described. In both conditions the lining of the stomach is exposed to the action of the gastric juice longer than is normal, and it seems probable that this may make it intolerant of the acid in the retained contents. This would cause discomfort coming on after the height of digestion.

In my list three patients had undoubted signs of alimentary hypersecretion; namely, pain at night, aggravated symptoms of irritation and excess of fluid in the gastric contents after a test meal. No fluid was found in the fasting stomach over night, indicating that the hypersecretion was not continuous. Ten patients had decided retention, as shown by the presence of food in the stomach four or five hours after an ordinary meal and by the demonstration of dilatation. Kaufmann found dilatation of the stomach 35 times in 53 patients with hyperacidity symptoms, which is a considerably larger proportion than in my series. He found that the signs of irritation disappeared as the atony disappeared. In the remaining 14 patients of my list, no cause could be demonstrated for the hyperesthesia. In seven of them the acidity was of the higher grade and in the other seven of the lower and middle grades, including one case of achylia. In the case of achylia, even the ferments were absent from the gastric contents. The patient suffered much from pain, especially two hours after meals. No retention could be demonstrated. He was temporarily relieved by bromids and finally recovered and gained weight under a liberal diet and the rest cure.

In almost all of these cases the gastric symptoms were

9. In speaking of the acidity of the gastric contents I have tried to avoid as much as possible the terms hyperacidity, normal acidity and subacidity. As I have shown, there is good reason to believe that these terms are misleading in that they assume that acidities above or below certain arbitrary limits are necessarily pathologic, whereas both very high and very low acidity may be compatible with perfect health. I have used the term acidities of the upper, middle or lower grades instead. The first would include all cases with total acidities above 60. The second between 30 and 60, and the third, under 30. I have assumed that the total acidity fairly represents the HCl secretion, provided it can be shown that there is no decided amount of organic acid present. Almost all of my patients were examined more than once and with different meals, and I have not attempted to draw sharp distinctions, but have tabulated each case in the place in which the general average of examination showed it to belong. Most of my records were taken before my attention was particularly called to the point I am discussing, and so I hope that suggestion has played little or no part in eliciting the character of pain from which patient suffered.

directly connected with over fatigue or worry or were a part of a general nervous irritability. In all of the patients the gastric symptoms improved and finally disappeared under a treatment directed toward relieving the nervous strain and raising the level of nutrition without paying much attention to the condition of the stomach. The result of the treatment, quite as much as anything else, would indicate that the hyperesthesia in these cases was a local manifestation of a general nervous irritability. That is, it was a sensory neurosis of the stomach. This is the view taken by Kaufmann, Stockton and Musser,[10] each of whom reports a series of similar cases.

It is, of course, very hard to prove definitely the existence of a pure neurosis. One may question whether the neurasthenia, instead of being the cause, may not be the result of the gastric disturbance. The presence of a sensory neurosis seems to explain best the questions that we have been considering; namely, first, why acidity of a high grade may exist without symptoms; and second, why "hyperacidity symptoms" occur with acidity of the middle or lower grades in cases in which there is no retention, ulcer or hypersecretion.

The clinical lesson for us in this is that we must not be surprised or thrown off the track in such cases when with the clinical picture of hyperacidity we find normal or subnormal gastric secretion. Moreover, it seems probable that it is the hyperesthesia and not the acid secretion at all that we influence by our treatment when we relieve hyperacidity symptoms. This is almost certainly true in the cases where the acidity is of the middle or lower grade; for then we can not hope, nor would we wish permanently to reduce an acidity that is already low.

Indeed it seems doubtful whether we can expect to influence permanently the secretion of acid. When the acidity is of the higher grade it has always been the aim of the therapeutist to give remedies that will reduce secretion. Thus Riegel[11] and Pirone[12] have shown experimentally that atropin has a decided effect in reducing HCl secretion. Riegel and Walko say that this effect is only transient and that the secretion is not permanently affected. The same is true of the use of oil.[11] I do not know of any systematic series of observations on the question of whether the acidity is lowered permanently when an attack of hyperacidity symptoms is relieved. Riegel[11] infers that the secretion is not permanently affected; and Kaufmann[2] says certainly that it is not affected, but does not give figures. If it is true that treatment has no permanent effect on the acid then this is a very strong argument in favor of the view that it is the hyperesthesia and not the acidity that we influence by treatment. I can give no data on this point, but suggest the subject as a field for research.

If what I have said is true, namely, that the hyperesthesia rather than the acidity is the point of attack in our therapeutics, then considerable light is thrown on the treatment of the condition. In the first place, the necessity of correct diagnosis is made manifest and emphasized. Especially is it of great importance to determine whether the symptoms of irritation are due to ulcer, retention or hypersecretion on the one hand; or to a sensory neurosis on the other. The first three conditions have their own methods of treatment, which need not be considered here. When the hyperesthesia is due to a sensory neurosis, the treatment must consist in the removal of the general nervous irritability by improving nutrition, eliminating as far as possible the cause of worry and fatigue, and by rest, hydrotherapy and other methods usually employed for this purpose. In this manner alone can the gastric symptoms be permanently cured.

10. Trans. Assoc. Amer. Phys., 1905, p. 193.
11. Deuts. med. Wochft., May 12, 1904.
12. Riforma Med., Aug. 12, 1903.

TREATMENT.

I have not the space to enter into the details of the treatment, but wish to consider briefly the following points: (1) The diet. (2) The use of sedatives, of alkalies and of nux vomica.

1. The Diet.—If hyperesthesia rather than the acidity is the point of attack, then the controversy that arose at one time concerning the proper diet for hyperacidity is explained. One school favored a carbohydrate diet, because it was supposed that carbohydrates did not offer as much stimulus to HCl secretion as proteids did. The other school used an almost exclusively proteid diet in order to take up and neutralize as much acid as possible by the power that proteids possess of combining with the free hydrochloric acid. Neither extreme was found to give very good results, and gradually experience has shown that the best diet is a liberal mixed one, containing rather a high proportion of fats and proteids and given in a form as unirritating as possible. Regarded from the standpoint of the treatment of hyperesthesia of a nervous origin, this liberal and unirritating diet would be the most suitable one. Its liberality would improve nutrition and in this way help general nervous irritability.

But, whatever is the composition of the diet, the all-important point is that it should offer no irritation to the already oversensitive mucous membrane. Whether proteids or carbohydrates predominate must be decided by the amount of acid secreted and by the state of the intestinal digestion, as shown by the study of the stools. But it is very necessary that all food be given in such a form as to produce the least possible irritation. The diet must be liberal enough to raise the general level of nutrition. Proteids and fats are excellent foods for this purpose, and this is probably the reason why the mixed diet is the one that has given the best results The diet that has proven to be the best for cases of irritation with high acidity gives nearly as satisfactory results with moderate or lower grades. This is not because it is best suited to neutralize the free acid or to inhibit its secretion, but because it is nourishing and non-irritating and helps to cure the sensory neurosis by raising the level of nutrition.

2. Remedies.—Much the same thing is true concerning the various remedies used to relieve the pain in cases of high acidity. As has been said, the acid of the gastric contents is directly responsible for the irritation, although it can not produce this irritation unless the mucous membrane is unduly sensitive. Therefore, to relieve pain the acid may be neutralized after the height of digestion. This applies not only to the cases with high grades of acid, but also to those with middle or low grades, although not to the same extent. The neutralization, of course, requires the use of alkalies at about the time that the pain would otherwise appear. In the same way in the high grades of acidity such drugs as atropin, which temporarily inhibit HCl secretion, relieve the source of irritation and help the hypersensitive mucous membrane to recover its normal resistance, may be used.

In my experience, the various nervous sedatives, such as bromids, valerianates or sumbul, have proven very use-

ful in temporarily relieving the discomfort in these cases with irritative symptoms. Of course, in the lower grades of acidity, sedatives are relatively more valuable than the alkalies for obvious reasons. In the rare cases of achylia with hyperacidity symptoms, they are the only means of relief, since here, of course, the question of acidity plays little or no part in the production of symptoms. In cases of achylia the question of atony must be most carefully considered. In my patient the stomach emptied itself rather more promptly than normal, and the discomfort was apparently due to a true sensory neurosis.

Finally, I wish to refer to Musser's[10] suggestion of nux vomica in doses ascending slowly to the physiologic limit as a remedy for these cases of hyperesthesia. He says that nux vomica is theoretically contraindicated in cases of hyperchlorhydria on account of its supposed action in increasing the secretion of acid and, as D. D. Stewart stated in the discussion, this has been the received opinion. Musser said that he has had uniformly good results from the use of the drug in those cases in which the symptoms of hyperacidity were apparently due to a sensory neurosis.

The beneficial effects of nux vomica, in spite of the apparent contraindication to its use in cases of hyperacidity symptoms, are perfectly explained when we consider that it is a sensory neurosis that we are treating and not a temporary increase in gastric acidity. My own experience has shown that nux vomica given as Musser suggests is an excellent remedy in these cases in which we are attempting to remove a local neurosis by increasing the general nervous stability of the individual.

DISCUSSION.

Dr. De Lancey Rochester, Buffalo, said that it was very important that numerous examinations of the gastric contents should be made and under different circumstances before coming to any conclusion as to the presence of superacidity. In reference to motor insufficiency of the stomach as a cause of pain he said that under these circumstances the pain is caused by the attempt of that organ, after it had become filled, to empty itself, a sort of colic of the stomach, as it were. In many cases that he had studied in which there was pain and superacidity there had been a certain amount of irritation of the bowel and an inactivity of the colon; in these cases the best results were obtained by paying attention to the colon and washing it out. The value of nux vomica is in stimulating peristalsis and so permitting the stomach and colon to empty themselves. Many of these cases, he said, when carefully studied would present pain, referred rather to the colon than to the stomach, and particularly to the transverse colon; when this is washed out thoroughly the pain will cease. Often the administration of strontium bromid is of value in relieving the gastric pain.

Dr. Charles G. Stockton, Buffalo, said that it seemed to him that the most important thing to bear in mind is the uncertainty and the variations of the manifestations connected with the act of digestion in disease; when pathologic conditions arise they cause symptoms which may be readily misunderstood and lead us into a maze unless this fact is kept in mind. There is no doubt, he said, but that hyperchlorhydria is a very important reality; and after further observation it still seems to him that this question of hyperesthesia is also of great importance. One certainly sees more cases now of hyperesthesia than of hyperchlorhydria, and the former would certainly not be cured, no matter how much relieved, by any treatment addressed locally to the stomach, and could only be really benefited by attention paid to the general condition. It is a matter of general hyperesthesia. In Dr. Stockton's opinion this is a most important feature and should be insisted on, and it is time that the medical profession should recognize the fact that local treatment is not so important as the general treatment in gastric hyperesthesia. Again, sometimes acute symptoms, exciting suspicion of the presence of ulcer, may arise merely from some disturbance of the nervous system which can be relieved only by general measures.

Dr. Hobart A. Hare, Philadelphia, said that the points in Dr. Steele's paper that impressed him the most were what he related from his personal experience, namely, that the patients who suffered from gastric pain, from hyperacidity or hyperchlorhydria, did better on a plan of treatment directed to the nervous system and the nerves supplying the stomach. It seems to him that the giving of drugs for the purpose of quieting the stomach and relieving the pain is after the homeopathic form of treatment, not in the sense of *similia similibis curantur*, but in the endeavor to treat the symptoms instead of trying to treat the cause producing the pain. Most of the drugs recommended in the text-books and in the discussions have been classified as nerve sedatives. They not only do no good, but often do harm. This is a matter that he has had repeatedly impressed on his mind, and he has seen many patients treated for months by diet and drugs who did not improve until a proper rest cure was carried out. In much the same way we know that many cases of mucomembranous enterocolitis can not be cured without a rest cure. This is rather a sweeping assertion to make, but he believes it to be true. These patients can have all sorts of treatment without benefit; then rest in bed, a characteristic rest cure, will be followed by a rapid recovery. Another point that interests him very much is the relationship between those cases of hyperchlorhydria with pain and those cases that had no pain, but only discomfort; the patients suffered from other symptoms, usually associated with attacks of hyperchlorhydria, and at times had no gastric discomfort whatever. He said that a thing that has impressed him very much is the folly of endeavoring to reach any definite conclusions regarding the true activity of the stomach by making only one or two examinations of its contents; such an endeavor is absolutely futile unless one is careful to see that the examinations are made at the identical time of day, when the identical kind of food has been taken, under the same identical conditions, etc. For instance, he has seen a case examined on a Monday morning after a comfortable day and a half of rest, that is, Saturday afternoon and Sunday; on the Monday a very severe nervous strain in business caused a tremendous hyperchlorhydria. For proper results, he reiterated, the tests should be made at the same time of day, the same kind of food should be taken and the same man should make the examinations. In closing he repeated that to his mind the most important thing to do is to treat the patient with remedial measures other than drugs. Apart from the employment of the rest cure, special attention should be paid to the nervous and mental strain under which the patient may be laboring if successful results are to be attained.

Dr. Charles H. Hughes, St. Louis, in referring to the dyspeptic feature of this disease, said that for the last meeting of the American Medical Association, which he had failed to reach in time, he had prepared a paper on the subject, "Dyspepsia Considered as a Brain Disease," calling attention to the original news on this subject of Dr. Brigham. Three quarters of a century ago Brigham's book was written and in it many of the views later enunciated by Ewald and other medical men were anticipated. If one considered the neural relation between the stomach and the brain, Dr. Hughes said, it would be of considerable value in the management of dyspepsia and of apepsia and it would not be difficult to discover the most satisfactory method of treating these conditions; treat the individual as well as the stomach; treat the conditions arising from the stomach, but also the conditions behind the dyspepsia, the conditions in the nervous system that contribute to develop the disease manifested through stomach symptoms. The peptogenic glands of the stomach, like other organs in the body, are so intimately related to the nervous mechanism, especially with the vagus nerve coming from the floor of the fourth ventricle, and with the ganglionic system, that the highest success will not follow any treatment or management of dyspepsia without considering the neural relations of the individual. The sus-

tenance of the nervous system, the rest and rebuilding of the exhausted neurons and blood corpuscles are the essential points; therefore, treat the whole man.

DR. JOHN A. WITHERSPOON, Nashville, Tenn., confessed to experiencing a little doubt regarding neurosis of the stomach. He believes that it is not only necessary to examine the contents of the stomach to determine the amount of acidity, but also to examine to determine its size and particularly its capacity for drainage. The majority of the patients coming under his care have impressed him with the fact that the pylorus is not draining the stomach contents because of inactivity of the muscular structure; in other words, it is unable to empty itself. This is either because of some nervous influence, spasm of the pylorus, or possibly because of cicatricial contractions resulting from an old ulcer which had healed in the neighborhood and produced faulty drainage from the stomach. The treatment should be addressed to the nervous system, but attention should be paid to the drainage as well. A plan of dietetics, a general building up, with rest or possibly some surgical interference, should be considered in the treatment of these cases. The best results he has obtained, and this is a point the internist would come to in time in the treatment of cases of hyperacidity, was by treating the condition not as a neurosis but as a mechanical affair; and sooner or later this will be forced to the attention of the surgeons who, in many cases, would perform a gastroenterostomy.

DR. MAX EINHORN, New York, said that he had pointed out years ago the points expressed in Dr. Steele's paper. With regard to the normal acidity, he believes that this can best be determined by taking, for instance, ten people and finding that the average acidity is so and so, and let this average be taken as the normal. Then it would not matter so much if one or two had a higher or lower acidity. The people who apply for aid are those who have a high degree of acidity, accompanied by subjective symptoms. Years ago Leube read a paper on nervous dyspepsia, in which he designated as nervous dyspepsia the condition in which the stomach was found empty six hours after a big meal, and HCl was encountered in the gastric contents. But at that time the methods employed were not so accurate; quantitative analysis was not used. Later, when the clinicians had begun to use qualitative analyses then they began to separate from nervous dyspepsia those cases in which there was too much acidity. This group was designated as hyperchlorhydria, alkalies were administered, and many patients recovered. There was found some actual palpable lesion, or symptom which could be alleviated. It was in the same way with many other things. Thus we often get a clew as to how to manage these cases., We may call it hyperchlorhydria, or brain disease, and so on and so on, but often we can find palpable symptoms which can be alleviated and a cure will result.

DR. B. SIPPY, Chicago, said that a complexity of symptoms are designated as hyperchlorhydria and the general practitioner is often called on to treat them. He directed attention particularly to the fact that pain is not a common symptom of hyperchlorhydria; in most cases the patient complains of a feeling of discomfort rather than of pain. When pain is present as a constant symptom, and this point he emphasized very strongly, it almost always means the presence of an ulcer. To be sure there may be a number of cases of hyperchlorhydria in which there is a great sensitiveness of the nerves and in which pain follows after meals; but if the pain is constant suspicion of ulcer should always be aroused.

DR. J. DUTTON STEELE, Philadelphia, emphasized the fact that he attempted to draw a sharp distinction between the cases with decided motor insufficiency in which the discomfort was probably due to the retention of gastric contents and the cases in which a sensory neurosis is the only condition that could explain the symptoms satisfactorily. However, we have no way to measure the minor grades of gastric motor insufficiency. None of the methods that have been proposed have stood the test of time. When a satisfactory and clinical test for gastric insufficiency is discovered then much new light may be thrown on just such relatively obscure conditions as that under discussion.

ANTITETANIC SERUM IN FOURTH OF JULY INJURIES.

[A record of 291 injuries caused by toy pistols, etc., immunized by the antitetanic serum without a single case of tetanus, with a comparison of the results with those obtained in a year when no serum was used, and in which nearly one-third of the injured succumbed to tetanus.]

H. J. SCHERCK, M.D.
Chief Dispensary Physician of the City Health Department.
ST. LOUIS, MO.

For the last few years I have published the results of my work along the line of immunization of patients who applied to us with wounds which occurred about the Fourth of July, caused by the indiscriminate use of the toy pistol, dynamite canes, giant crackers, etc. While the fact has been well established that for immunizing purposes antitetanic serum is absolutely a positive preventive against the development of tetanus, yet I deem it of sufficient importance to publish my results for this year in order that the use of the serum as an immunizing agent may become universal throughout the civilized world.

Benefit of Press Aid.—This year very nearly twice as many cases as last year were handled by the city dispensaries of St. Louis, and the credit for this large increase must again be given to the daily press of our city who gave great publicity to the excellent work accomplished on previous occasions and directed all those who might be injured to call at once at one of our various city dispensaries. The result was extremely gratifying, since we were able to observe that the patients applying at the city dispensaries gave, as their addresses, locations in nearly every portion of the city. A large number of physicians of St. Louis were aware of the arrangements that we had made to handle a large number of patients, and not a few of the cases were referred to our clinic directly by the various physicians.

Modus Operandi.—A few days prior to the Fourth a large supply of serum was obtained and was placed in the ice box at a suitable temperature. Each package contained 10 c.c. of immunizing serum, which is conveniently put up in a syringe package, having everything complete and thoroughly sterilized. Orders were issued to assistant dispensary physicians to the following effect:

1. That a careful list must be kept of the name, age, address, and description of wound of each patient applying.
2. That after treatment, each patient should be instructed to apply daily, in order that the temperature might be recorded and the wound be dressed. In nearly all cases this was cheerfully complied with.

In so far as the surgical handling of each case was concerned the following instructions were issued:

1. To incise freely every wound.
2. Carefully and thoroughly to remove from the wound every particle of foreign matter.
3. To cauterize the wound thoroughly with a 25 per cent. solution of carbolic acid.
4. To apply loosely a wet pack of 2½ per cent. solution of carbolic acid.
5. To inject into the cellular tissues of the abdominal wall the contents of a package of immunizing serum containing 10 c.c. Before injecting this serum, however, they were thoroughly to scrub the skin with soap and water and wash the same off with alcohol; after the injection, the wound inflicted by the needle was to be carefully sealed with cotton, painted over with collodion.

Beginning about the Fourth and extending until about the seventh, 170 cases were treated as explained above. In this report follows a list, giving data of all the cases. Those who did not apply at the dispensary

after the first treatment were seen at their residence by one of my staff. We can repeat the statement that in not one single case treated by us in the foregoing manner did tetanus develop. In my opinion, this speaks in the most positive terms as to the efficacy of the antitetanic serum as a positive preventive against the development of the disease.

Good Work Accomplished.—In the report of the last two years I gave a careful account of the work accomplished. A list of 121 cases treated in the same manner was shown, and at that time I reported that not one of these patients thus treated developed tetanus. I compared this result with the result obtained after the 4th of July, 1903, at which time fifty-six patients were treated in the city dispensaries, among which there were no less than 16 deaths. Comparing this percentage without the treatment adopted this and last year, we could have reasonably expected to have had about 40 deaths.

CASES TREATED IN CITY DISPENSARIES.

Year.	No. cases.	Antitetanic serum.	Deaths from tetanus.
1903	56	No	16
1904	37	Yes	none
1905	84	Yes	none
1906	170	Yes	none

This statement of facts, in my opinion, speaks more eloquently than any words on the necessity and duty of every physician to immunize this class of wounds, as past experience has taught us that they are so often followed by this dread disease.

Experimental Tests.—In order to test experimentally the efficacy of the serum, I requested the late Dr. Snodgrass, city bacteriologist, to make some laboratory experiments for me. He did the following work: I furnished him with some toxin that was labeled 1:40,000,000 of toxin as the M. L. D. for a gm. of guinea-pig. The commercial serum was labeled 100,000 immunizing units a cubic centimeter. The special serum was labeled 200,000 immunizing units a cubic centimeter. The antitoxic serum had been standardized so that one unit would protect 1 gm. of guinea-pig against 100 of its M. L. D.

He inoculated four guinea-pigs, each, with 100 times its M. L. D. of toxin. Pig No. 1, which weighed 310 gm., was kept as a control, receiving no antitoxin. Pig No. 2 weighed 400 gm. Four hundred units of the special serum was given, which was the exact amount necessary to protect it against the 100 M. L. D. which it had received. Pig No. 3 weighed 460 gm. To this were given 460 units of the commercial serum, the same that we had been using on the patients. This amount was the exact quantity necessary to protect it against the 100 M. L. D. which it had received. Pig No. 4 weighed 430 gm. To this pig were given 1,720 units, which was four times the amount necessary to protect it against the 100 M. L. D. which it had received. Dr. Snodgrass used this large amount so that if the serum had been standardized wrongly or it had deteriorated in strength it would have four times the advantage in protecting the animal which had received it.

The results were most gratifying; the unprotected pig, at the end of 16 hours, which was the earliest time at which observation was made, showed symptoms of tetanus on the side wherein the inoculation was made. It died at the end of 24 hours. None of the other pigs showed the slightest symptoms of tetanus at any time after these experiments. These experiments proved: 1. The extreme virulency of the toxin. 2. The exact standardization of the same. 3. That the antitoxin protected the animal exactly according to the standardization.

Conclusion.—In the tabulated list I have made no note of the temperatures following the injection of the serum, which was done for 10 days. In a few cases there was a slight rise of temperature on the succeeding day, which gave place to a normal run of temperature. No patients complained of urticaria. Other than this there was no reaction perceptible following the injection. In a few cases the serum was not injected until from two to four days after the infliction of the injury, and even at this late date it has proved prophylactic. Most of the injuries were inflicted by the careless use of blank cartridge pistols, and the majority of the wounds occurred on the left hands of the patients, the larger part of whom were males.

I sincerely trust the publication of the foregoing facts will cause the treatment of this class of cases with the immunizing serum to become general throughout the United States and thus save many lives which are annually sacrificed to overenthusiasm incident to the celebration of our nation's birthday.

PATIENTS IMMUNIZED AT THE ST. LOUIS CITY DISPENSARIES DURING THE EARLY PART OF JULY, 1906.

Case.	Patient.	Age.	Color.	Sex.	Date of injury: July.	Description of wound.*
1.	L. M.	13	W.	F.	1	Blank gunshot, right calf.
2.	F. E.	11	C.	M.	1	Blank cartridge, left hand.
3.	F. O'H.	13	W.	M.	1	Blank gunshot, left hand.
4.	R. S.	5	W.	M.	1	Blank cartridge, left index finger.
5.	R. B.	12	W.	M.	1	Blank cartridge, palm left hand.
6.	M. G.	8	W.	M.	1	Bl. ctg., index finger, l. hand.
7.	A. H.	9	W.	M.	1	Blank cartridge, palm left hand.
8.	W. L.	7	W.	M.	1	Gunshot, face and neck.
9.	M. L.	14	W.	M.	2	Gunshot, left hand.
10.	F. A.	16	W.	M.	2	Gunshot, left hand.
11.	P. G.	9	W.	M.	2	Gunshot, left index finger.
12.	G. B.	14	W.	M.	2	Gunshot, palm left hand.
13.	W. W.	7	W.	M.	2	Punctured foot.
14.	G. C.	13	W.	M.	2	Burn, giant cracker, chest, chin and left hand.
15.	G. McK.	10	W.	M.	2	Gunshot, l. ind. and mid. fingers.
16.	B. B.	10	W.	M.	2	Gunshot, index finger, left hand.
17.	J. F.	9	W.	M.	3	Gunshot, palm left hand.
18.	K. M.	14	W.	M.	3	Gunshot, left leg.
19.	W. C.	15	W.	M.	3	Bl. ctg., index finger r. hand.
20.	H. F.	8	C.	F.	3	Gunshot, palm left hand.
21.	A. J.	14	W.	M.	3	Gunshot, hand.
22.	L. P.	13	W.	M.	3	Powder burn, prem. expl., pistol.
23.	M. F. W.	22	W.	M.	4	Burned by skyr., left hand.
24.	C. D.	13	W.	M.	4	Gunshot, finger.
25.	J. W.	17	W.	M.	4	Gunshot, palm right hand.
26.	J. K.	7	W.	M.	4	Gunshot, finger.
27.	J. C.	8	W.	M.	4	Blank cartridge, palm l. hand.
28.	D. G.	14	W.	M.	4	Giant cracker, burn, face.
29.	W. D.	10	W.	M.	4	Gunshot, palm left hand.
30.	W. L.	10	W.	M.	4	Burn, face.
31.	L. C.	12	C.	M.	4	Gunshot, finger left hand.
32.	G. R.	12	W.	M.	4	Burns, finger of right hand.
33.	J. S.	15	W.	M.	4	Burn, leg.
34.	G. W.	32	W.	M.	4	Cannon cracker burn, left eye.
35.	V. M.	12	W.	M.	4	Face, burn, cannon cracker.
36.	G. D.	12	W.	M.	4	Gunshot, second finger left hand.
37.	H. H.	12	W.	M.	4	Gunshot, middle finger left hand.
38.	W. L.	19	W.	M.	4	Powder burns, face, hands, feet.
39.	J. H.	13	W.	M.	4	Burn, cannon, face.
40.	J. B.	18	W.	F.	4	Gunshot, index finger, r. hand.
41.	H. R.	8	C.	M.	4	Gunshot, index finger, left hand.
42.	A. R.	15	W.	M.	4	Gunshot, palm left hand.
43.	A. H.	18	W.	M.	4	Burn, torpedo, left cheek.
44.	O. H.	14	W.	M.	4	Gunshot, right forefinger.
45.	F. L. H.	17	W.	M.	4	Burn, cannon, face.
46.	L. McP.	8	W.	M.	4	Gunshot, palm left hand.
47.	J. S.	12	W.	M.	4	Gunshot, finger.
48.	E. R.	16	W.	M.	4	Burn, finger, cannon cracker.
49.	E. D.	12	W.	M.	4	Gunshot, index finger, left hand.
50.	T. H.	13	W.	M.	4	Gunshot, left forefinger.
51.	J. H.	10	W.	M.	4	Gunshot, left forefinger.
52.	L. G.	14	W.	M.	4	Gunshot, palm left hand.
53.	E. K.	12	W.	M.	4	Gunshot, second finger, left hand.
54.	W. C.	10	W.	M.	4	Burn, left hand, torpedo.
55.	E. D.	11	W.	M.	4	Gunshot, left hand.
56.	C. D.	13	W.	M.	4	Gunshot, palm left hand.
57.	C. D.	8	W.	M.	4	Gunshot, left index finger.
58.	E. K.	15	W.	M.	4	Gunshot, palm left hand.
59.	F. J.	13	C.	M.	4	Burns, chest, blank cartridge.
60.	G. W.	10	W.	M.	4	Gunshot, left hand.
61.	M. D.	9	W.	M.	4	Gunshot, second finger, left hand.
62.	J. W.	12	W.	M.	4	Burn, face, cannon.
63.	G. J.	16	W.	M.	4	Gunshot, left hand, palm.
64.	B. T.	11	W.	M.	4	Gunshot, palm left hand.
65.	W. M.	8	W.	M.	4	Gunshot, palm left hand.
66.	W. W.	12	C.	M.	4	Burn, r. side chin, bl. ctg.

Case.	Patient.	Age.	Color.	Sex.	Date of Injury July.	Description of wound.*
67.	S. S.	11	W.	M.	4	Gunshot.
68.	G. B.	9	W.	M.	4	Blank cartridge, left hand.
69.	F. T.	12	W.	M.	4	Gunshot, little finger.
70.	T. B.	10	W.	M.	4	Gunshot, third finger, left hand.
71.	M. T.	8	W.	M.	4	Gunshot, left hand.
72.	R. B.	6	W.	M.	4	Gunshot, index finger, left hand.
73.	S. B.	9	W.	M.	4	Gunshot, left hand.
74.	J. McK. ..	12	W.	M.	4	Gunshot, left hand, little finger.
75.	J. McL. ..	14	W.	M.	4	Gunshot, left hand.
76.	J. McC ..	10	W.	M.	4	Gunshot, left index finger.
77.	A. M.	14	W.	M.	4	Gunshot, left hand.
78.	Y. M.	10	W.	M.	4	Gunshot, palm left hand.
79.	J. D.	12	W.	M.	4	Lac., thumb and palm, r. hand, giant firecracker.
80.	G. S.	10	W.	M.	4	Gunshot, left index finger.
81.	C. M.	10	W.	M.	4	Gunshot, middle finger, l. hand.
82.	R. R.	12	W.	M.	4	Gunshot, left hand.
83.	A. M.	13	W.	F.	4	Burn, face, cracker.
84.	P. R.	14	W.	M.	4	Gunshot, palm left hand.
85.	C. F. F. ..	19	W.	M.	4	Abras. and contus. forearm, cr.
86.	C. F.	70	W.	F.	4	Shot with 22 cal. in l. arm.
87.	R. B.	13	W.	M.	4	Gunshot, left palm.
88.	F. J.	12	C.	M.	4	Bl. ctg., l. hand, index finger.
89.	J. J.	16	W.	M.	4	Gunshot, palm left hand.
90.	L. C.	25	C.	F.	4	Gunshot, left index finger.
91.	F. G.	28	W.	M.	4	Burn, left side.
92.	W. A.	38	W.	M.	4	Gunshot, right hand.
93.	E. H.	23	W.	F.	4	Lac. and burn, hand, giant cr.
94.	K. R.	8	W.	M.	4	Gunshot, middle finger, l. hand.
95.	E. M.	38	W.	M.	4	Lac. and burn, hand.
96.	F. W. B..	11	W.	M.	4	Burns, face.
97.	C. C.	15	W.	M.	4	Burn, face and left hand.
98.	L. M.	10	W.	M.	4	Blank cartridge, right hand.
99.	E. P.	10	W.	M.	4	Burns, gluteal region and r. hand.
100.	H. M.	15	W.	M.	4	Burn, left hand, little finger.
101.	H. M.	11	W.	M.	4	Gunshot, palm left hand.
102.	G. M.	15	W.	F.	4	Burns, face, eyes.
103.	E. B.	13	W.	M.	4	Blank cartridge, left hand .
104.	G. L.	12	W.	M.	4	Burn, face, right eyeball.
105.	V. D.	14	W.	M.	4	Expl., cannon, r. thigh and leg.
106.	A. P.	12	W.	M.	4	Lac. palm left hand, dyn. cane.
107.	C. S.	18	W.	M.	4	Burns, face, both eyeballs, cannon.
108.	L. Y.	15	W.	M.	4	Burns, both eyes, face and neck.
109.	C. W.	3½	W.	M.	4	Burn, r. side face and right ear.
110.	T. S.	10	W.	M.	4	Lac. forehead, dyn. cane.
111.	H. S.	14	W.	M.	4	Burn, right hand, palm.
112.	W. R.	12	W.	M.	4	Gunshot, index finger, left hand.
113.	G. N.	15	W.	M.	4	Lac. little finger, bl. cartridge.
114.	W. M.	9	W.	M.	4	Gunshot, lac. little finger, l. hand.
115.	C. R.	18	W.	M.	4	Bl. ctg., lac. second finger, l. hand.
116.	C. K.	14	W.	M.	4	Lac. finger and thumb, l. hand, torpedo.
117.	T. H.	11	W.	M.	4	Bl. ctg., index finger, toy gun.
118.	J. H.	12	W.	M.	4	Punct. and contus., inner side r. ankle, dyn. cane.
119.	J. C.	10	W.	M.	4	Lac. leg, dyn. expl.
120.	P. C.	14	W.	M.	4	Gunshot.
121.	M. G.	15	W.	M.	4	Gunshot.
122.	H. A.	13	W.	M.	4	Gunshot.
123.	W. P.	10	W.	M.	4	Gunshot.
124.	R. N.	11	W.	M.	4	Gunshot.
125.	V. B.	14	W.	M.	4	Gunshot.
126.	W. S.	2½	W.	M.	4	Burn, leg, dyn. cane.
127.	H. M.	14	W.	M.	4	Blank cartridge, palm right hand.
128.	C. McG...	10	W.	M.	4	Lac. l. hand, toy pistol.
129.	J. F.	12	W.	M.	4	Lac. left hand, blank cartridge.
130.	H. B.	11	W.	M.	4	Lac. finger, left hand, toy pistol.
131.	F. G.	27	W.	M.	4	Lac. 3rd finger, l. hand, R. can.
132.	C. C. W..	10	W.	M.	4	Lac. palm, r. hand, cannon crk.
133.	W. L.	17	W.	M.	4	Bl. ctg., lac. l. forefinger.
134.	N. L.	17	W.	M.	4	Gunshot, left forefinger.
135.	C. F.	16	W.	M.	4	Gunshot, left index finger.
136.	J. B.	13	W.	M.	4	Gunshot, left forefinger.
137.	W. H.	9	W.	M.	4	Gunshot, palm left hand.
138.	J. R.	12	W.	M.	4	Gunshot, left forefinger.
139.	E. R.	11	W.	M.	4	Gunshot, second finger.
140.	J. H.	11	W.	M.	4	Gunshot, left index finger.
141.	W. S.	5	W.	M.	5	Burn, l. arm, expl. "flower pot."
142.	W. S.	5	W.	M.	5	Burns, l. arm, expl. "flower pot."
143.	A. C.	10	W.	M.	5	Gunshot, left hand.
144.	A. G.	14	W.	M.	4	Gunshot, 2d finger, left hand.
145.	J. L.	12	W.	M.	5	Gunshot, left hand, 3rd finger.
146.	A. K.	8	W.	M.	5	Gunshot, thumb, left hand.
147.	W. S.	14	W.	M.	5	Burn, thumb, left hand.
148.	J. W.	11	W.	M.	5	Gunshot, 2d fingers, l. hand.
149.	W. M.	12	W.	M.	5	Gunshot, palm left hand.
150.	W. C	13	W.	M.	5	Gunshot, index finger.
151.	I. V.	12	W.	M.	5	Bl. ctg., l. forefinger.
152.	V. S.	19	W.	M.	5	Burn, r. hand, expl. cannon.
153.	G. S.	16	W.	M.	5	Gunshot, l. 3rd finger.
154.	J. M.	9	W.	M.	5	Burn, left arm, Roman candle.
155.	W. L.	9	W.	M.	5	Gunshot, l. middle finger.
156.	K. N.	17	W.	F.	5	Gunshot, l. index finger.
157.	R. O.	12	W.	M.	5	Gunshot, l. index finger.
158.	E. W.	10	W.	M.	5	Blank cartridge, right hand.
159.	J. M.	12	W.	M.	5	Gunshot, palm left hand.
160.	A. D.	12	W.	M.	5	Gunshot, palm left hand.
161.	L. S.	2	W.	F.	5	Gunshot, index finger.
162.	J. P.	9	W.	F.	5	Gunshot, palm left hand.
163.	F. F.	9	C.	M.	5	Gunshot, left hand.
164.	F. S.	19	W.	M.	6	Gunshot, palm and middle finger, left hand.
165.	G. F.	9½	W.	M.	6	Gunshot wound, palm and wrist, right hand.
166.	I. J.	12	W.	M.	7	Burned and lac. r. hand, dyn.
167.	C. R.	17	W.	M.	7	Lac. r. hand and finger, giant crk.
168.	H. G.	10	W.	M.	7	Gunshot wound, right thumb.
169.	W. L.	11	W.	M.	8	Gunshot, hand.
170.	C. H.	10	W.	M.	11	Burn, index finger, right hand, Roman candle.

* Bl., blank; ctg., cartridge; dyn., dynamite; punct., puncture; lac., lacerated or laceration; contus., contusion; abras., abrasion; expl., explosion; crk., cracker; l., left; r., right.

ETHYL CHLORID AS A GENERAL ANESTHETIC IN MINOR OPERATIONS.

GEORGE F. HAWLEY, M.D.

Professor of Rhinology and Oto-Laryngology in the Clinical School of Medicine.

CHICAGO.

As early as 1848, Heyfelder used ethyl chlorid as a general anesthetic, and in 1880, the British Medical Association, after experimenting with the drug, condemned its use as being too dangerous, producing convulsions and arresting respiration. About 1895-6 it was again brought to the front by Carlson and Thursing, and was soon used extensively in dental work.

Seitz of Konstanz, in 1892, reported 16,000 cases, with but one death, and that in a very unfavorable subject. With the exception of nitrous-oxide gas, he considers it the safest of all anesthetics. Opisthotonos was observed in three cases, all three, however, were addicted to the use of alcohol.

Burnett[1] considered ethyl chlorid an ideal anesthetic. He used it in a concentrated form, and found it caused more relaxation than bromid of ethyl, though not so much as chloroform. McLennan[2] places it on a par with laughing as for safety. The stage of anesthesia is longer than with ethyl bromid. H. Gerard[3] published an elaborate study on the subject, but the report of his cases hardly justifies his conclusion. In 78 cases, there were four failures to come under its influence. In 19, the pre-anesthetic period ran from five to thirty-eight minutes. In the majority of cases, the anesthetic period was not continued more than ten minutes. The pupils dilated in 85 per cent., corneal reflex was absent in 49 per cent. and excitement, which at times was quite violent, was noticed in 65 per cent. of the cases. In 14 cases there was arrest of respiration, lasting fifteen seconds, vomiting occurred in 39 per cent., sweating in 26 per cent. and increased rapidity of the pulse, running up to 160 a minute. Albumin is generally present, sometimes found twenty-four hours after the use of this drug.

Golden[4] classes chlorid of ethyl with internal poisons, and says that it must be used with the greatest care, and only in brief operations. For this reason, it can not be compared with either ether or chloroform in prolonged operations. In short operations, however, he considers it safer than chloroform, but not so safe as ethyl bromid. Both should be used with the patient in a recumbent position and with a free accompaniment of air. T. O. Allen[5] reports one death, but does not state the number of cases in which this drug was used. The patient was a colored man, aged 28, an epileptic, who was to be operated on for inguinal hernia at the Pennsylvania Hospital. Anesthesia was started with ethyl chlorid and was used until near narcosis when ether was substituted. At that moment the patient gagged, and vomited enormous

1. Med. Press, Dec. 10, 1902.
2. Glasgow Med. Jour., October, 1902.
3. Glasgow Med. Jour., October, 1902.
4. New York Med. Jour., Dec. 14, 1901.
5. Amer. Journal Med. Science, December, 1902.

quantities of a clear watery liquid, which seemed to flow from his mouth without any apparent retching. Both respiration and heart action ceased, and all efforts to restore them were fruitless. This death in my opinion, however, can not justly be laid to the use of ethyl chlorid.

In 24 cases of minor operations reported by McCardie,[6] the longest lasting fifty-four minutes, no unpleasant effect was produced by the use of ethyl chlorid, except in one case, in which the patient died an hour afterward from heart disease, the autopsy showing advanced disease of the heart and other organs.

The whole number of cases collected by McCardie was 16,000, with but one death, and 12,436 are reported by M. W. Ware,[7] with but one death. Such men as Pfister,[8] Erdmann[9] and Craig[10] place ethyl chlorid above either chloroform or ether as to safety in its use, and consider it only surpassed by nitrous oxid gas. Ethyl chlorid gives a longer narcosis, is less unpleasant to take, induces narcosis more quickly, and (which sometimes is quite an item) is cheaper. The greatest objection offered is the rapidity with which the patient frequently passes out from under it. Like gas, the anesthesia caused by ethyl chlorid can be continued by means of chloroform or ether. Ethyl chlorid should not be crowded for if the vapor is too concentrated it may produce asphyxia. Vomiting which sometimes occurs is not so marked as with chloroform or ether.

In gynecology both E. C. Montgomery[11] and P. P. Bland[11] place ethyl chlorid in the front rank of anesthetics, as being inferior to none and equaled by few, from the fact that it produces very little if any irritation of the respiratory mucous membrane, thereby causing none of those distressing symptoms resulting from excessive secretion. This anesthetic they advise in pelvic examination, in hysterectomy, and in other operations about the pelvic viscera. They especially recommend it for feeble patients requiring vaginal incision for pelvic drainage, as one need not begin its use until everything is prepared and the surgeon is ready to operate.

John McKay[12] reports 48 operations about the head under ethyl chlorid, 27 of these being on the turbinates and sinuses, four for adenoids and two for septum deformities. He reports it as being highly satisfactory causing not the slightest uneasiness.

Lotheisen,[13] after carefully considering all the reported cases of death from ethyl chlorid, claims that statistics show that it stands next to chloroform as to mortality; the latter giving one death to every 2,075, while ethyl chlorid presents one death to every 2,550. Lotheisen reports the death of a patient aged 41, while the surgeon was performing skin grafting. When narcosis had lasted three minutes the patient became cyanosed and the muscles of the limbs and jaw became spasmodically tense. The breathing soon became irregular and suddenly stopped. Autopsy showed fatty degeneration of the heart and marked sclerosis of the coronary arteries. He believes the patient would have died under chloroform had it been used.

In June, 1905, Chaldecott, before the Society for the Study of Diseases in Children, after speaking of the many advantages possessed by ethyl chlorid, ended by saying: "It is very clearly laid down that the agent in question is a very powerful anesthetic and except under circumstances of extreme urgency, should only be administered to patients who have been properly prepared."

LePage and LeLorier[14] give the following as their experience with ethyl chlorid during parturition: "Ethyl chlorid possesses many advantages: 1. It is easily administered. 2. Anesthesia is obtained in from 30 to 60 seconds and lasts for about 4 minutes without renewal. 3. The return to consciousness occurs very rapidly without headache, and is accompanied only occasionally by slight vomiting. 4. It can be employed under the following conditions: In course of labor when it is urgent to extract the fetus by forceps, when an internal version is practiced, or when the anterior foot is pulled down in complete presentation of the buttocks. In the latter case the anesthesia by ethyl chlorid has this advantage: It allows the patient to awaken rapidly and thus enables her to complete the expulsion of the fetus by her own efforts. During delivery ethyl chlorid may be used when the accoucheur is obliged to remove the placenta from the uterine cavity, and after delivery, when insertion of sutures into the perineum is required, as well as during pregnancy to diagnose pelvic deformities."

When we consider the various diametrically different opinions herein given, regarding the safety and non-safety of ethyl chlorid as a general anesthetic, we are forced, I believe, to the conclusion, that other elements, independent of the anesthetic itself must have been present in many of these cases to produce death. It is not always easy to assure oneself that death is due solely to the anesthetic given, whatever that anesthetic may be. It is difficult to eliminate the many elements which may be present at the time, any one of which may be the cause of death, instead of that particular anesthetic used. Improper use and impurity of the drug, surgical shock, or some idiosyncrasy on the part of the patient himself, are a few of the causes of death independent of the character of the anesthetic selected. It is impossible, judging simply from the statistics herein given, to state positively which of the two anesthetics now frequently used in short operations, namely bromid and chlorid of ethyl, is the safer, each possessing distinct advantages. Although the patient may yield to the influence of the bromid quicker than to that of the chlorid, and while a sudden awakening from an apparent narcosis may sometimes occur under the use of the chlorid, we must still consider the ease with which the patient passes through the various stages of unconsciousness, when acted on by the chlorid, the length of time it can be used, (fifty-four minutes being recorded) and the preponderance of evidence as to its safety, "before we hesitate to consider ethyl chlorid par excellence"— as an anesthetic in all short operations, especially on the ear, nose and throat.

After several years of more or less constant use of ethyl chlorid, both in clinical and private practice, I have still to see the first case in which it has caused me the slightest fear or uneasiness. This I can not say of the bromid, as only recently a death occurred in this city during its use. I do not hesitate, therefore, to say, that when used with care and understanding and in proper and selected cases, I prefer ethyl chlorid in short operations to all other anesthetics, except perhaps nitrous oxid gas. As in all anesthetics certain precautions must be taken in administering ethyl chlorid: (1) The patient should be prepared as for chlorform or ether; (2) whatever mask is used it should fit the face snugly; (3) a graduated tube with a large aperture should be used;

6. Lancet, April 4, 1903.
7. Med. Record, April 6, 1901.
8. Wis. Med. Jour., January, 1904.
9. Med. News, May 28, 1904.
10. Amer. Med., Oct. 1, 1901.
11. Jour. Amer. Med. Assn., April 2, 1902.
12. Jour. Rhinol., Laryngol. and Oto-Laryngol., October, 1901.
13. Münch. med. Wochschr., Nov. 18, 1900.
14. Amer. Med., Feb. 14, 1903

(4) the anesthetic should be well supplied with air and as little given as possible; (5) care should be taken not to present it at first in too large a quantity, frequently a dram is quite sufficient for short operations; (6) the patient should rest a while after its administration, as faintness sometimes supervenes; (7) a mask should be used which does not receive the drug close to the patient's face; otherwise one is liable either to freeze the face of the patient or to cause asphyxia by the moisture from the expired air freezing on the gauze in the mask and thus preventing the free passage of air to the patient. For this reason I much prefer the Apperson inhaler.

This inhaler consists of a face piece of soft flexible rubber, a connecting metal tubing, an inlet tube for the ethyl chlorid, and a flexible rubber bag holding about one quart. The whole can be folded into small compass for the obstetrical or surgical bag. With this apparatus and the employment of the following simple directions, general anesthesia can be produced with absolute safety, and the patient is not only rapidly and perfectly narcotized, but he recovers in a remarkable short time and presents no after effects:

Place the face-piece over the patient's mouth and nose. Spray a small quantity of ethyl chlorid into the opening of the inner tube, and place the thumb over the aperture (use the right hand for spraying and the left hand for holding the inhaler in such a manner that the thumb is free to cover and uncover the opening of the tube).

Allow the patient to take several (about half a dozen

or so) inhalations; this will get the patient accustomed to the odor and effect of the drug slowly, without shock. Repeat this operation at intervals, each time using more and more ethyl chlorid and having the patient take more and more inhalations. Three to five grams is the usual quantity required for an anesthesia of short duration or preliminary to the use of ether or chloroform. By repeating this method and allowing the patient to breathe air occasionally by removing the thumb, an indefinite, safe anesthesia may be maintained. When the patient becomes narcotized a gentle snoring will be heard; the operation can then be begun. Should admission of air be desirable, take the finger off the tube for a few minutes.

The ethyl chlorid for general anesthesia is specially prepared, and when ordering, mention should always be made of the fact that it is desired for narcosis.

The use of ethyl chlorid, especially with the above apparatus, has the following advantages: 1, Safety in administering; 2, ease of administration; 3, it rapidly produces surgical anesthesia; 4, it can be used where chloroform or ether would be contraindicated; 5, the patient can be kept in any position during anesthesia, upright or prone; 6, no cyanosis need occur during administration; 7, the patient recovers promptly without after-effects; 8, it is inexpensive; 9, it can be used for long or short operations with equal success; 10, it is especially useful as a preliminary to other anesthetics, decreasing the time required for the production of anesthesia and avoiding shock and discomfort to the patient.

The apparatus will be found of great utility by practitioners or surgeons who are called on to do emergency surgical work. Its advantages will be apparent.

Many preparations of ethyl chlorid are impure and unreliable. An examination of fifty specimens showed thirty to be unfit for use. In all my short operations, while administering the anesthetic, I generally have the patient hold up one arm. When it falls, I wait a short time before removing the mask, to assure myself that the patient is sufficiently under its influence to operate. If the patient becomes materially excited the mask is removed at once. Narcosis is reached when the pupils begin to contract, the muscular contraction to abate and when the breathing becomes slightly stertorous. The contraction of the pupils, however, is never so great as under chloroform; they will frequently first dilate followed by a slight contraction. If the anesthetic is pushed too far, however, the pupils will again dilate. For continuous anesthesia 2 or 3 c.c. is sprayed every two or three minutes. It is especially recommended as a preliminary to ether.

The inhalation of ethyl chlorid on the whole is pleasant. It has a sweet taste, like that of chloroform, and is unattended by strangulation or by salivation. The intense cold produced by its evaporation, is not perceptible to the patient, and it is taken, as a rule, without difficulty, except by alcoholics and neurotics. Alcoholics show marked excitation and require large quantities of the drug before they succumb, and even then they generally remain more or less rigid. Neurotics must be treated with care. One must obtain their confidence, and their surroundings must be free from all noise and confusion. According to Ware ethyl chlorid acts on the sympathetic nerve, as shown by the accelerated pulse, transiently dilated pupils and flushed face. Next it acts on the spinal cord and finally on the brain, all being acted on in rapid sequence.

According to Benjamin W. Richardson an anesthetic is dangerous in proportion to the chlorin it contains; therefore, whatever danger is present in the use of ethyl chlorid, must be due to the one atom of chlorin it contains. If this be true, somnoform, an anesthetic produced by Rolland of Bordeaux and at present receiving much attention by the profession, possesses, not only the same danger as ethyl chlorid, but an additional danger due to its liability to decompose and to form bromin. Its advantages depend entirely on the 60 per cent. of ethyl chlorid it contains, while of the remaining 40 per cent., 35 per cent. is methyl chlorid, a liquid which evaporates at 20 degrees below zero and is used only to hasten the anesthetic action. The remaining 5 per cent. is ethyl bromid, which though small in quantity nevertheless is an additional danger to the use of this compound. Ethyl chlorid is gradually supplanting laughing gas, as a preliminary anesthetic to chloroform and ether, abroad. Malherbe says that by the use of this drug as a prelim-

inary anesthetic, the danger of primary syncope is suppressed. The shock is much lessened, as well as the quantity of chloroform administered, thereby diminishing subsequent gastric troubles.

One is generally governed in the selection of an anesthetic by his own experience in its use. If he is so unfortunate as to witness the death of an individual, while under the influence of an anesthetic, that anesthetic will ever afterward be shunned, or used with fear and trembling, in spite of the fact that death may have been due to causes acting independently of the drug. Conclusions are formed and statistics given which are often misleading from this very fact. All conclusions and statistics, therefore, should be taken *cum grano salis* if we wish to arrive at any correct and positive understanding of this subject. A careful study of all deaths occurring while under the influence of anesthetics must be made, and a scientific knowledge of their physiologic action on lower animals, as well as on man, must be obtained by experimental research, conducted along lines similar to those presented in a paper read by Drs. Large and Brown before the Rhinologic and Oto-Laryngologic Society at Buffalo last summer, before we can positively answer the question: Is ethyl chlorid the safest anesthetic to be used in minor operations?

Special Article

FOURTH OF JULY INJURIES AND TETANUS.

For the fourth consecutive year THE JOURNAL publishes statistics regarding injuries received during the celebration of the Fourth of July, with special reference to tetanus resulting from these injuries. The total number of cases this year is 89, or 15 less than last year, when there were 104 cases. In 1904 there were 105 cases and in 1903, 415. This shows a considerable reduction, there being 326 less than in 1903. To compare the totals of accidents caused by blank cartridges in the different years is interesting, and also shows a decrease until this year, when there is an increase. In 1903 there were 1,672 injuries due to this cause, compared with 1,005 in 1904, 809 in 1905, and 979 this year. (See Table 4.)

The figures this year are from the same source as heretofore and treated in the same manner, so that any comparisons between the figures of this and either of the preceding years may be on a presumably like basis. The list of tetanus cases is as follows:

TABLE 1.

	Name.	Age.	Cause of Wound.	Site of Wound.	Duration in days.	Result.
	CALIFORNIA.					
1.	McKean	Boy.	Fireworks.	....	..	D.
2.	Manchester	Boy.	Blank cartridge.	Hand.	10	D.
3.	Steiner	15	Blank cartridge.	Hand.	7	D.
	DELAWARE.					
1.	Loughlin	..	Blank cartridge.	....	8	D.
	ILLINOIS.					
1.	Rietz	15	Giant cracker.	Hand.	9	D.
2.	Bryson	Adult	Giant cracker.	Hand.	15	D.
3.	Bajarski	34	Blank cartridge.	....	10	D.
4.	Heil	10	Gunshot.	....	17	D.
5.	Pural	8	Gunshot.	....	17	D.
6.	Strauss	16	Giant cracker.	....	14	D.
7.	Bacia	13	Cannon.	....	4	D.
8.	Williams	17	Blank cartridge.	Hand.	6	D.
9.	Hamilton	Adult	Giant cracker.	Hand.	10	D.
10.	Erdman	15	Firecracker.	....	7	D.
11.	Laverick	Adult	Fireworks.	....	..	..
12.	Aken	Adult	Blank cartridge.	....	13	D.
13.	Reeder	..	Gunshot.	Hand.	6	D.
14.	Staab	Boy	Fireworks.	....	..	D.
15.	Gerardo	9	Blank cartridge.	Hand.	..	D.
16.	Lundgren	11	Blank cartridge.	Hand.	20	D.
	INDIANA.					
1.	Browning	12	Blank cartridge.	Hand.	6	D.
2.	Pressley	13	Blank cartridge.	Hand.	10	D.
3.	Thomson	7	Blank cartridge.	Hand.	10	D.
4.	Blaney	7	Blank cartridge.	....	20	D.
5.	Van Hoke	9	Gunshot.	....	4	D.
6.	Bokowski	15	Gunshot.	....	10	D.
7.	Gustafson	11	Gunshot.	Hand.	8	D.
8.	Markland	11	Blank cartridge.	Hand.	10	D.
	IOWA.					
1.	Moss	..	Giant cracker.	Hand.	5	D.
2.	Kakich	17	Blank cartridge.	....	9	D.
3.	Steele	26	Giant cracker.	....	20	D.
4.	Baker	10	Blank cartridge.	Hand.	..	D.
	KENTUCKY.					
1.	Delbel	16	Blank cartridge.	....	12	D.
	MAINE.					
1.	McAleer	14	Blank cartridge.	....	9	D.
	MARYLAND.					
1.	Wrightson	..	Blank cartridge.	....	..	D.
	MASSACHUSETTS.					
1.	Johnson	22	Blank cartridge.	Hand.	..	D.
2.	Sullivan	12	Blank cartridge.	Hand.	..	D.
3.	Dodd.	11	Blank cartridge.	Hand.	..	R.
	MICHIGAN.					
1.	Koppelch	16	Giant cracker.	Hand.	8	D.
2.	Clark	13	Blank cartridge.	....	11	D.
3.	McNaughton	12	Fireworks.	....	5	D.
4.	Goodsell	13	Blank cartridge.	Hand.	10	D.
	MINNESOTA.					
1.	Maslon	11	Giant cracker.	Hand.	6	D.
2.	Johnson	26	Gunshot.	Hand.	14	D.
	MISSOURI.					
1.	Nifford	16	Giant cracker.	....	13	D.
2.	Bracy	13	Blank cartridge.	Hand.	..	..
3.	Sadler	11	Torpedo.	Head.	..	..
	NEBRASKA.					
1.	Wilbourn	9	Blank cartridge.	Finger.	4	D.
	NEW HAMPSHIRE.					
1.	Johnson	..	Blank cartridge.	Hand.	10	D.
	NEW JERSEY.					
1.	Hamilton	11	Blank cartridge.	Hand.	8	D.
2.	Sholtz	13	Blank cartridge.	....	9	D.
3.	Shelton	17	Fireworks.	....	..	..
4.	Palmer	18	Giant cracker.	Hand.	..	..
5.	Meyer	13	Blank cartridge.	Hand.	..	D.
6	Malady	13	Blank cartridge.	Hand.	..	..
7.	Mosby	11	Blank cartridge.	Hand.	9	D.
8.	Hughes	..	Blank cartridge.	Hand.	8	D.
9	Mallo	29	Blank cartridge.	Finger.	..	D.
10	Sheehan	8	Blank cartridge.	Hand.	6	D.
	NEW YORK.					
1.	Romleski	13	Blank cartridge.	Hand.	10	D.
2.	Woodard	..	Giant cracker.	Leg.	14	D.
3.	Delaney	13	Blank cartridge.	Hand.	..	..
4.	Lester	67	Giant cracker.	Leg.	15	D.
5.	Davis	9	Blank cartridge.	....	17	D.
6.	Townsend	38	Firecracker.	Hand.	..	..
7.	Celestino	7	Giant cracker.	Hand.	..	D.
8.	Walters	Boy	Giant cracker.	Hand.	9	D.
	OHIO.					
1.	Leibenboach	15	Blank cartridge.	....	10	D.
2.	Wise	..	Blank cartridge.	Leg.	..	D.
3.	Reddington	..	Blank cartridge.	....	7	D.
4.	Powers	16	Blank cartridge.	Thumb.	..	R.
5.	Troxler	18	Blank cartridge.	....	6	D.
6.	Stevens	16	Giant cracker.	Hand.	..	R.
7.	Frinkey	9	Fireworks.	....	13	D.
	OKLAHOMA.					
1.	Shreck	8	Blank cartridge.	....	10	D.
	OREGON.					
1.	Willey	2	Blank cartridge.	Hand.	..	D.
	PENNSYLVANIA.					
1.	Shultz	13	Blank cartridge.	Hand.	9	D.
2.	Liebenguih	15	Blank cartridge.	Leg.	4	D.
3.	Rose	12	Blank cartridge.	Finger.	8	D.
4.	Mouris	8	Firecracker.	Hand.	..	..
5.	Guldin	Adult	Giant cracker.	....	..	..
	RHODE ISLAND.					
1.	McCabe	12	Blank cartridge.	Hand.	9	D.
	VERMONT.					
1.	Delaney	13	Blank cartridge.	Finger.	..	..
2.	Prince	14	Blank cartridge.	Hand.	9	D.
	WEST VIRGINIA.					
1.	Lannon	12	Blank cartridge.	....	..	D.
2.	Gliffen	12	Blank cartridge.	....	10	D.
	WISCONSIN.					
1.	Lama	8	Blank cartridge.	Hand.	..	D.
2.	Thiel.	Adult.	Giant cracker.	Hand.	..	R.
	WYOMING.					
1.	Parnell	13	Blank cartridge.	Hand.	8	D.

Tetanus cases occurred in 25 different states, 2 more than last year, 4 more than in 1904, but 5 less than in 1903. Illinois leads this year with 16 cases, New Jersey comes next with 10, while Indiana and New York tie for third place, with 8 cases each, and Ohio comes next with 7. New Jersey, Oregon, Indiana, New York, Ohio, Vermont and West Virgina have an increase of two or more cases, while Wisconsin, Pennsylvania, Michigan, Illinois and Connecticut show a marked decrease. Table 2 shows a comparison of the number of cases in each state for the four years.

TABLE 2.

	1903.	1904.	1905.	1906.
Alabama	..	..	1	..
Arizona	..	..	..	..
California	2	4	4	3
Colorado	4	..	1	..
Connecticut	3	..	3	..
Delaware	..	..	1	1
District of Columbia	1	..	..	..
Florida	..	..	..	..
Georgia	..	..	..	..
Idaho	1	..	..	..
Illinois	40	15	20	16
Indiana	11	6	3	8
Indian Territory	1	..	..	..
Iowa	14	2	3	4
Kansas	11	1	..	..
Kentucky	4	2	..	1
Louisiana	..	..	..	..
Maine	2	4	1	1
Maryland	1	..	1	1
Massachusetts	16	5	7	3
Michigan	29	7	9	4
Minnesota	15	2	2	2
Missouri	29	1	3	3
Montana	2	1	1	..
Nebraska	4	3	3	1
New Hampshire	2	..	..	1
New Jersey	3	9	3	10
New York	36	9	6	8
North Dakota	..	..	..	..
Ohio	67	9	5	7
Oklahoma	..	..	1	1
Oregon	2	..	..	1
Pennsylvania	82	17	12	5
Rhode Island	3	..	..	1
South Carolina	..	..	..	..
South Dakota	..	..	..	..
Tennessee	..	..	..	..
Texas	..	..	..	..
Utah	..	1	1	..
Vermont	3	2	..	2
Washington	2	1	..	..
West Virginia	3	..	..	2
Wisconsin	10	4	13	1
Wyoming	..	..	..	..
Total	415	105	104	89
No states having cases	30	21	23	25

While it seems that restrictions against toy pistols were somewhat relaxed this year and more accidents resulted from their use, still the number of tetanus cases was less. Table 3 shows a comparison between the causes of tetanus cases this year and the three previous years.

TABLE 3.—Causes of Tetanus Cases.

	Blank. cartridge.	Giant cracker.	Cannon.	Firearms.	Powder, etc.
1903	303	17	5	3	27
1904	74	18	5	1	7
1905	65	17	4	5	13
1906	54	17	1	7	10

Besides the lockjaw cases directly due to Fourth of July accidents, 60 cases were reported this year which were due to other injuries as pentrating wounds from nails or splinters, from crushing injuries in falls or otherwise, a decided increase over the 32 cases reported last year. Of this class there were 55 cases reported in 1904 and 15 in 1903. The distribution this year was as follows:

California 2, Illinois 9, Indiana 5, Iowa 8, Kansas 3, Kentucky 2, Massachusetts 1, Michigan 2, Missouri 1, Nebraska 1, New Jersey 2, New York 2, North Dakota 1, Ohio 11, Pennsylvania 3, South Dakota 1, Texas 5, Virginia 1 and Wisconsin 1. Cases therefore occurred in 19 states, Ohio, Illinois and Iowa leading, respectively, with 11, 9 and 8 cases. It is interesting to compare this list with the cases due to Fourth of July celebration.

DEATHS AND INJURIES ASIDE FROM TETANUS.

In Table 4 will be found a summary of all injuries, including tetanus, as well as of all the causes. The arrangement, as heretofore, is by states, so that comparisons may be made. Beneath the totals at the bottom of this table we have inserted for comparison the totals for the other three years. Table 5 is arranged to show a more ready comparison by states of the total accidents and deaths for four years.

Pennsylvania, the birthplace of independence, still remains far in the lead with 969 casualties, followed by New York with 681, Illinois with 598, Ohio with 490, New Jersey with 398, Michigan with 329 and Missouri with 325.

As heretofore all accidents not directly due to the discharge or handling of fireworks or other means of noise production on or about the Fourth of July, have been carefully omitted. For instance, while a crowd was assembled on a pier watching a display of fireworks, the pier gave away injuring a number of people. At another place a grandstand likewise fell. These accidents would have happened from any crowd gathering on them and are therefore omitted.

Besides 75 deaths from tetanus, there were 83 from other accidents, a total of 158, or 24 less than last year, 25 less than in 1904 and 308 less than in 1903.

Of the 83 killed aside from tetanus, 38 were killed by gunshot wounds, of which 14 were caused by stray bullets from the reckless use of loaded firearms on the part of others; 18 persons, mostly young children, were burned to death by fire resulting from fireworks; 18 persons were killed by explosions of powder, dynamite and railroad torpedoes; 3 were killed by giant crackers; 3 were killed by cannon; 1 by a misdirected skyrocket; 1 by a fall in an effort to avoid a giant cracker, and 1 in a runaway where the horses were frightened by the explosion of a large cracker. Probably the worst instance was the explosion of powder which killed 6 boys who were preparing to celebrate near Wilkesbarre, Pa.

The non-fatal accidents, while more numerous, were not quite so severe as last year, the increase coming among milder injuries. There were 22 blinded as compared with 25 last year; 72 lost one eye as against 106 last year, and 56 lost a leg, arm or hand as compared with 80 last year. Of those losing one or more fingers, however, there was a slight increase, the total being 227 as against 221 last year.

Almost invariably these mutilating wounds were caused by giant crackers, other causes being firearms, cannon and powder. The giant cracker, although far more dangerous than the smaller sizes, has a shorter fuse and this fuse in many instances burns in the central pith, leaving the outer part which has apparently ceased to burn. The reports in regard to this point are even more emphatic this year than last. Authorities should certainly condemn the giant cracker.

Firearms rank second as a cause for mutilating wounds, causing 532 injuries, 187 of which were caused by stray bullets. As before stated, 14 people were killed outright through this reckless use of loaded firearms and 173 others more or less seriously injured. Toy cannon occupy third place, although the results, while not so fatal, were usually more mutilating than those from firearms. Even canes and caps, which at first were her-

TABLE 4.—SUMMARY BY STATES OF JULY FOURTH CASUALTIES.

STATE.	Deaths.			Injuries.						Total Persons Dead or Injured.	Causes of Tetanus Cases.		Causes of All Cases Aside from Tetanus Cases.					
	From Tetanus.	From Other Causes.	Total.	Loss of Sight.	Loss of One Eye.	Loss of Legs, Arms or Hands.	Loss of Fingers, One or More.	Other Injuries.	Total Non-fatal Injuries.		Blank Cartridge.	All Other Causes.	Blank Cartridge.	Fire Crackers.	Cannon.	Firearms.	Stray Bullet.	Canes and Caps.	Powder and Fireworks.
Alabama	..	1	1	..	..	..	..	1	1	2	..	..	1	..	..	1	..	..	..
Arizona	..	2	2	..	..	..	..	3	3	5	..	..	..	..	..	1	..	1	3
Arkansas	..	..	..	..	..	..	..	4	4	4	..	..	1	3	..	..	..	..	..
California	3	2	5	2	1	3	4	81	91	96	2	1	15	28	15	3	3	1	29
Colorado	..	..	..	..	..	..	2	21	23	23	..	..	1	17	1	..	..	..	4
Connecticut	..	..	..	..	2	4	4	150	160	160	..	..	57	46	22	12	7	..	25
Delaware	1	..	1	..	..	..	1	6	7	8	1	..	2	4	..	..	1	..	..
District of Columbia	..	..	..	..	..	..	..	5	5	5	..	..	..	2	1	..	..	..	2
Florida	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Georgia	..	..	..	..	..	..	..	4	4	4	..	..	1	1	2	..	..	..	..
Idaho	..	..	..	..	..	..	..	3	3	3	..	..	..	1	..	..	..	..	2
Illinois	15	8	23	2	5	9	38	518	573	596	1	11	127	296	47	39	25	20	116
Indiana	8	8	16	2	4	3	12	213	234	250	5	3	41	72	24	16	5	5	79
Indian Territory	..	..	..	..	..	..	..	2	2	2	..	..	..	1	..	1	..	..	..
Iowa	4	3	7	2	4	..	10	232	248	255	2	2	25	115	13	8	6	6	78
Kansas	1	1	2	..	2	..	2	56	60	61	..	..	7	19	10	2	1	2	20
Kentucky	1	..	1	..	..	..	1	19	20	21	1	..	1	5	2	2	1	1	2
Louisiana	..	4	4	..	..	..	1	2	3	7	1	..	..	3	..	..	..	2	4
Maine	1	..	1	1	..	..	1	12	14	15	1	..	1	7	1	..	..	1	4
Maryland	2	..	2	1	..	..	..	7	8	10	2	..	2	5	..	..	..	..	..
Massachusetts	2	5	7	..	3	..	11	308	322	329	2	..	34	143	12	11	6	6	95
Michigan	4	4	8	..	4	4	15	162	185	193	..	2	32	62	15	10	6	9	55
Minnesota	2	2	4	1	2	..	4	84	91	95	..	2	14	32	11	5	2	4	25
Mississippi	..	..	..	..	..	..	..	2	2	2	..	..	..	2	..	..	..	..	..
Missouri	1	2	3	..	3	..	7	312	322	325	1	2	136	63	24	36	2	12	49
Montana	..	..	..	..	..	..	1	2	3	3	..	..	..	2	..	..	..	..	1
Nebraska	1	2	3	1	2	..	3	38	44	47	1	..	15	18	3	..	4	1	5
Nevada	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
New Hampshire	1	..	1	..	..	..	2	26	28	29	1	..	1	13	6	1	..	..	7
New Jersey	7	2	9	1	3	5	5	375	389	398	8	2	101	92	34	36	21	3	101
New Mexico	..	..	..	..	..	..	..	1	1	1	..	..	..	1	..	..	..	..	..
New York	6	6	12	1	7	9	39	613	669	681	5	5	107	204	55	49	35	41	182
North Carolina	..	..	..	..	..	..	..	1	1	1	..	..	..	..	..	1	..	..	..
North Dakota	..	1	1	..	..	..	..	10	11	..	..	..	..	..	..	2	..	2	6
Ohio	5	4	9	1	6	9	27	438	481	490	5	3	58	156	39	36	20	26	148
Oklahoma	1	..	1	..	..	..	2	9	11	12	1	..	2	6	..	1	..	..	2
Oregon	1	1	2	1	..	..	..	8	9	11	1	..	..	3	1	..	..	..	6
Pennsylvania	3	12	15	5	11	6	19	913	954	969	3	2	81	240	44	55	36	12	496
Rhode Island	1	..	1	..	1	..	1	18	20	21	1	..	2	11	2	..	..	..	5
South Carolina	..	..	..	..	..	..	..	1	1	1	..	..	..	..	..	1	..	..	..
South Dakota	..	4	4	..	..	..	..	1	1	5	..	..	..	1	..	..	..	..	4
Tennessee	..	3	3	..	..	1	2	3	6	..	..	..	..	1	1	..	..	1	3
Texas	..	..	..	..	1	1	9	11	11	..	..	..	..	1	4	1	..	..	5
Utah	..	..	..	..	..	..	..	18	18	18	..	..	..	6	..	..	..	..	12
Vermont	1	..	1	..	..	1	..	12	13	14	2	..	4	2	..	..	..	..	5
Virginia	..	..	..	..	..	..	..	8	8	8	..	..	1	4	1	..	1	..	1
Washington	..	..	..	..	1	..	1	23	25	25	..	..	5	7	1	1	1	..	10
West Virginia	2	2	4	..	2	1	4	53	60	64	2	..	7	32	2	4	..	..	17
Wisconsin	1	4	5	..	6	1	7	136	150	155	1	1	15	52	15	9	3	8	51
Wyoming	1	..	1	..	..	..	..	2	2	3	..	..	..	1	..	..	..	..	1
1906 totals	75	83	158	22	72	56	227	4931	5308	5466	54	35	925	1690	408	345	187	162	1660
1905 totals	87	95	182	25	106	80	221	4562	4994	5176	65	39	744	1775	474	265	139	171	1504
1904 totals	91	92	183	19	61	61	208	3637	3986	4169	74	25	931	1268	508	406	†	‡	1056
1903 totals	406	60	466	10	75	54	174	3670	3983	4449	363	29	1309	1152	397	236	†	‡	731

†Figures for accidents caused by stray bullets included with "gunshot" wounds in 1903 and 1904.
‡ Figures for accidents caused by canes and caps included with "powder and fireworks" in 1903 and 1904.

alded as a safe means of noise making, are not proving to be as harmless as at first supposed. The noise element is certainly a success, but the exploding cap often causes penetrating wounds of the ankles or legs—usually the most unprotected part of those who use them, the boy with knee pants. Then, overcharging the cane caused it to explode in many instances, the particles of iron doing considerable damage.

TABLE 5.—TOTAL DEATHS AND ACCIDENTS BY STATES DURING FOUR YEARS.

	1903.	1904.	1905.	1906.
Alabama	2	7	1	2
Arizona	1	...	4	5
Arkansas	...	...	3	4
California	100	138	142	96
Colorado	39	44	26	23
Connecticut	162	133	132	160
Delaware	1	5	14	8
District of Columbia	2	10	24	5
Florida	1	2	2	...
Georgia	...	...	...	4
Idaho	4	4	3	3
Illinois	366	423	542	558
Indian Territory	1	...	...	2
Indiana	160	211	217	250
Iowa	168	137	328	255
Kansas	63	88	56	61
Kentucky	30	72	17	21
Louisiana	...	2	3	7
Maine	31	32	29	15
Maryland	21	22	13	10
Massachusetts	637	193	467	329
Michigan	144	157	288	193
Minnesota	157	102	174	95
Mississippi	...	...	...	2
Missouri	147	84	218	325

	1903.	1904.	1905.	1906.
Montana	5	17	40	3
Nebraska	46	63	43	47
Nevada	...	1	2	...
New Hampshire	37	23	9	29
New Jersey	228	204	350	398
New Mexico	...	4	5	1
New York	522	549	566	681
North Carolina	...	...	1	1
North Dakota	10	8	29	11
Ohio	443	327	329	490
Oklahoma	...	3	7	12
Oregon	16	13	9	11
Pennsylvania	533	744	721	969
Rhode Island	64	30	11	21
South Carolina	...	...	...	1
South Dakota	4	10	15	5
Tennessee	4	1	5	6
Texas	2	2	4	11
Utah	23	22	25	18
Vermont	45	14	10	14
Virginia	...	11	5	8
Washington	21	25	15	25
West Virginia	19	16	34	64
Wisconsin	190	215	230	155
Wyoming	1	2	8	3

As to preventive measures, antitoxin was more generally used than ever before, and results in one large city may be seen from an article published elsewhere in this issue of THE JOURNAL. It was used quite generally in all tetanus cases, although its value is still questioned after the serious symptoms have set in. In one cases which recovered, antitoxin was given as frequently as ten injections daily.

While there seemed to be some relaxation as regards ordinances regulating fireworks, there was on the whole a stronger effort made at their enforcement. List of those arrested were in some instances nearly as large as those of the injured. There is need for stronger ordinances. These should be passed and proclaimed before local dealers have purchased their stock, then both seller and purchaser of prohibited fireworks should be vigorously prosecuted. If those who use these methods of celebration were the only ones injured there might be less reason to object; but the large number of injuries to innocent persons and to children inexperienced as to the use and danger of firearms and explosions—as well as the noise and hubbub which at present mars the day for those who prefer more enlightened means of celebration, certainly demand that opposing efforts should not be relaxed.

Clinical Notes

IMPOTENCE CAUSED BY THE EXCESSIVE CONSUMPTION OF BROMO-SELTZER.

WILLIAM J. ROBINSON, M.D.
NEW YORK.

The case herewith reported possesses a double interest. It demonstrates the hitherto, I think, unreported injurious effect of the coal-tar derivatives on the sexual sphere and the danger of permitting the indiscriminate sale to the laity of dangerous drugs and nostrums.

Patient.—Mr. S. J., teacher, married, father of three children, consulted me Feb. 2, 1906, for loss of sexual power. For over a year he had been noticing a gradual diminution of the *libidio sexualis*, together with *ejaculatio præcox*. He has been generally running down, losing flesh, etc.

Examination.—His complexion was sallow, dingy, cachectic. He tires very quickly, and gets out of breath on walking up stairs, or on running after a car. His tongue was heavily coated and breath was offensive. He had no appetite, bowels were constipated. He had had gonorrhea twelve years ago, but is apparently perfectly cured, there being no shreds in the urine and the prostatic secretion being normal. Uranalysis showed absence of albumin, but the presence of a trace of glucose (by the phenyl-hydrazin test). Pulse varied from 90 to 96 in the recumbent position, immediately jumping to 104 or 108 on standing up. Every sixth or seventh beat the heart would skip a beat. He had recently made application for life insurance and had been rejected.

My efforts to elicit any possible or probable cause for his present condition proved fruitless. All he knew was that he was working very hard, day and night, and had been suffering with severe headaches. And here he stopped.

Treatment.—I treated him for about two weeks, locally and generally; there was some improvement, but it was not so positive and unmistakable as could be desired.

Additional History.—At that time his wife, who had found out that her husband was under my treatment, came and asked me if her husband had told me that he was using daily a large bottle of bromo-seltzer, in fact that he was a "bromo-seltzer fiend." He was very touchy on the subject, she said, and would resent it very much if he knew that she "told on him," but she considered it her duty to do so. This put an entirely different aspect on the case. On his next visit I told him that it was useless for me to treat him further, that he must be the victim of some bad habit or drug which was undermining his constitution, and that unless he gave me his full confidence I would have nothing to do with him. He then told me that about a year and a half previously he had taken, for the first time, a dose of bromo-seltzer to relieve a slight headache; the headache was relieved, but returned the next day in a worse form. The headaches gradually became more frequent and more intense, and the doses of the bromo-seltzer had to be increased. He was taking on the average two dollar-size bottles a week. He tried to break off, but his headaches then became so intense that he was unable to do any work or to sleep, and he felt forced to return to the powder. He did not make any very great efforts to overcome the habit, he said, for he did not think that the bromo-seltzer was injuring him or had anything to do with his present miserable condition. He did not think that a medicine which might injure people would be permitted to be sold freely. (Blessed innocence. Even cocain-containing catarrh powders are sold indiscriminately).

Treatment and Result.—I explained to him that the bromo-seltzer would not only injure him, but would eventually kill him, and got him to promise to give up the stuff entirely. And he did. His wife told me that he hasn't touched it since. He suffered at first with agonizing headaches, but he bore them stoically, being determined to get well. His insomnia was absolute and I was obliged to give him a hypnotic for three or four nights. His headaches gradually improved. He followed the treatment faithfully, and he is now a well man. An irritable, despondent, tired-of-life hypochondriac four months ago, he is now hopeful, energetic, full of plans for the future, and a great enemy of bromo-seltzer and nostrums in general.

I have not the slightest doubt that a further continuance of the consumption of bromo-seltzer would soon have resulted in a fatal issue in this case. The nostrum vendors often ask for proofs of the deadly or injurious action of their products. Sudden deaths are rare; an immediate death from any nostrum would, of course, drive the latter out of existence at once. It is the slow, insidious effect of these nostrums that is so dangerous, because so difficult to recognize and to treat. At the same time, there is no doubt in the minds of those who have given the subject some study that the self-administered nostrum contributes considerably to the mortality rate, though it does not appear as one of the causes of death on the death certificates. Had this man died, the cause would have been given by attending physician as heart disease or kidney disease. He would never have been informed—and he would never have suspected—that the original cause of the man's untimely demise was the "harmless" bromo-seltzer.

MARKED ALBUMINURIA FROM A PROSTATIC ABSCESS.*

EDGAR G. BALLENGER, M.D.
Lecturer on Genitourinary Diseases, Atlanta School of Medicine.
ATLANTA, GA.

Abscesses of the prostate are sufficiently frequent and this source of albumin sufficiently neglected to justify the following report:

Patient.—Mr. X, aged 34, single, general health excellent, for ten years had a chronic gonorrheal urethritis, with slight involvement of the prostate.

Course of Disease.—April, 1906, he developed an acute attack of gonorrhea, which ran a moderately severe course, and at the end of a month the section of the prostate along the deep urethra became involved. It was tender on pressure, but gave no subjective symptoms. The hard, swollen segment appeared to be about the size of an index finger, and was about 2 inches in length. The urine passed after massage contained less débris, albumin and pus cells than were obtained

* Read before the Fulton County Medical Society, Atlanta, Ga., July 19, 1906.

before the acute prostatitis began, probably because the prostatic ducts were encroached on by the inflammatory swelling, and prevented the expression of the secretion.

Massage five days later showed about the same condition, except the part had become more swollen. Patient felt as well as usual and his urine was free from casts and albumin. There was no urethral discharge, but shreds were present in the urine. When he urinated two hours after massage a drop of blood and about a teaspoonful of pus followed the urine. No pain was felt.

For several days there was considerable purulent discharge from the urethra. The urine in all 3 glasses contained much pus and sufficient albumin to give a precipitate, when boiled, and citric and picric acids were added, equal in volume to the entire amount of 4 ounces of urine voided. After massage of the prostate about a teaspoonful of creamy pus escaped from the meatus, and 2 oz. of urine then passed was so albuminous that it completely solidified when boiled. For a week this condition remained about the same, except that the amount of albumin and pus gradually diminished. The discharge became intermittent, but appeared after straining at stool. The urine passed into 3 glasses would as a rule show more pus and albumin in the first and third glasses than in the second, while there was always a distinct increase of both after massage.

An effort was made to obtain urine free from proteid by washing out the bladder and urethra after massage, and having the patient void his urine within ten or fifteen minutes. This failed, as the proteid material secreted by the abscess cavity was so great that the urine passed within ten minutes contained enough albumin to give a precipitate of one-eighth the urine which was scanty, although it contained no casts nor had there been any symptoms of kidney disease. At no time did the patient suffer from the abscess and would not have known of its existence but for the examination. At the end of four weeks there was only a trace of albumin before massage, but a considerable amount of deutero-albumose after expressing the secretion.

Merely an examination of the urine in this case, without reference to the history or the prostate, would have been misleading and inclined one to the conclusion that the large amount of pus and proteid came from a pyonephritis. So high was the percentage of serum albumin that, in spite of the fact that I knew an abscess cavity gave off large quantities of proteid material and that he had an abscess of the prostate which had ruptured into the urethra, I was at first alarmed, thinking perhaps his kidneys were also involved. The subsequent history proved they were unaffected. After three weeks urine could be obtained free from albumin if voided within ten minutes following massage and complete irrigation.

In former papers I have called attention to the fact that prostatic albuminuria might be a source of error in the diagnosis of orthostatic, cyclic, or the so-called harmless or physiologic albuminuria, and also that the presence of prostatic albumin and albumose[1] indicate inflammation and are of value in reaching a diagnosis in mild, obscure cases of chronic prostatitis.

The presence of such a large quantity of pus and proteid in the urine of this patient without any subjective symptoms of prostatic trouble suggests the importance of eliminating abscesses of the prostate along with other conditions in which urinary findings simulate a pus kidney, before making a positive diagnosis of such conditions.

I know of no method of determining with accuracy whether or not some of the albumin does not come from the kidneys in patients of this kind, as it would, of course, be inexpedient to attempt the use of a catheterizing cystoscope or any of the urine segregators. Very significant are the history, the larger amounts of albumin in the first and third glasses with a decided increase after massage of the prostate and the fact that there were no casts or symptoms of kidney disease.

The lesson to be drawn from this patient is that in the past we have devoted too much time making delicate urinary tests and that we have made too little effort to determine the sources of its ingredients. We have too long taken for granted that proteid in urine is necessarily of renal origin.

1004 Century Building.

1. Recent observations have shown that a large part of the proteid from chronically inflamed prostates is deutero-albumose. This reacts with nearly all the tests like serum albumin, except with the heat test, the precipitate clearing up when boiled.

POISONING FROM OIL OF TANSY.

NELSON M. WHITEHILL, M.D.,
BOONE, IA.

The maximum dose of oil of tansy is given by most authorities as about eight minims.

Considering the small size of the dose required and the frequency with which it is used by women as an emmenagogue and abortifacient, it is surprising that we do not more often hear of poisoning resulting therefrom. I have watched the literature closely for reports of cases of this kind, but have seen only one reported by Dr. Leipziger[1] of Burlington, Iowa.

From druggists I learn that it has a reputation among the laity as an emmenagogue and that it is used frequently by women and girls who suspect and wish to avoid pregnancy. The two cases which have come to my notice are very similar, and one of them I wish to report.

Both cases occurred in young, unmarried women who, not having menstruated as usual, suspected pregnancy. Later developments proved their diagnoses correct.

The pregnancy was not interrupted.

Patient.—L. C. W., aged 18.

History.—I was called to see her at 10 p. m., and saw her a few minutes after the beginning of a convulsion which must have lasted fully five minutes and came without warning, except a slight nausea. The convulsion resembled very much an ordinary epileptic seizure. Her muscles were all contracted and the jaws so firmly set that it was impossible to use the stomach pump until apomorphin one-tenth grain had been given hypodermically. This produced vomiting and relaxed the muscles. The diagnosis then became easy from the odor of tansy in the vomitus. During the convulsion opisthotonos was marked, the muscles were strongly contracted and respiration was shallow and suspended; pulse was 110 and strong. The pupils were dilated and did not react. She tried to talk, but seemed unable to use her tongue. Large quantities of mucus collected in the throat and bronchial tubes. The face was flushed and seemed swollen. As many as eight or ten convulsions occurred and probably lasted three or four minutes each.

Treatment.—Treatment consisted of chloroform to control the convulsions, apomorphin to produce vomiting, and the vigorous use of the stomach pump followed by salines.

Result.—The patient was unusually drowsy the next day, but the day following she was all right, except that she felt a little weak. She said that she had taken two or three doses of half a teaspoonful each during the evening.

The pregnancy was not interrupted.

1. Iowa Med. Journal, February, 1906.

Giving Digitalis.—Colbeck is quoted in the *Denver Medical Times* to the effect that the administration of digitalis or any of its allies should always be preceded by a purge, preferably in the form of two or three grains of calomel or blue pill, with half a dram or more of compound jalap powder.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

103 DEARBORN AVENUE .... CHICAGO, ILL.

Cable Address . . . "Medic, Chicago"

Subscription price.....Five dollars per annum in advance

[For other information see second page following reading matter.]

SATURDAY, AUGUST 18, 1906.

POLYCYTHEMIA VERA.

There has been described within recent years a symptom-complex characterized especially by cyanosis, enlarged spleen and increased number of red blood corpuscles. Although cases had been reported and the subject had been referred to in the literature previously, it was not until Osler, in 1903, published the results of a thoughtful study of the disorder that it received the attention its importance warranted. Since that time additional cases have been recorded and the clinical account has been supplemented by the pathologic findings in a few cases that have come to autopsy. An admirable description of the clinical and pathologic features of the disorder is given by Dr. John H. Watson[1] on the basis of personal observation in conjunction with a study of the literature of the subject.

The disorder in question continues for many years. It has been observed most commonly at the middle period of life, and the largest number of cases have been in males. The cyanosis is most conspicuous in the face, particularly over the malar eminences, and on the nose, lips and ears. It is present at times also on the upper part of the chest and on the hands and feet. In most cases the spleen is obviously enlarged. Anemia and debility develop gradually. The urine usually contains a trace of albumin. Its color is heightened and an increase in urinary pigments has been found. Headache and vertigo occur early; mental torpor and impairment of memory later.

The blood presents a dark purple, almost black, color. Its viscosity is heightened, while the coagulation time is lessened. The number of red blood corpuscles, the percentage of hemoglobin, the total volume of the blood and the specific gravity are all increased. The number of white cells is relatively diminished, while the percentage of polymorphonuclear leucocytes is notably high. The red corpuscles vary in size, shape and staining capacity, and there appears to be an increased number of nucleated cells. The pulse is full and tense and the blood pressure is raised.

On postmortem examination the minute vessels are found greatly distended with blood. The medium-sized arteries are sclerosed, with thickening of the muscular coat. The left ventricle is generally hypertrophied. In the case specially studied by Dr. Watson the medullary marrow in the long bones was completely transformed from the yellow, fatty to a vivid purple variety. The compact bone was slightly encroached on and the shaft was more brittle than usual. Histologically the fat cells of normal marrow were largely replaced by nucleated red cells in great profusion, myelocytes, eosinophilous nucleated cells and giant cells. The entire tissue was permeated by thin-walled vessels distended with blood. The splenic enlargement was uniform, and, apart from intense vascularity, the structure of the spleen exhibited no abnormality.

In differential diagnosis valvular disease of the heart, especially of congenital origin, also myocarditis, adhesive pericarditis, emphysema and other diseases of the lungs and heart, as well as poisoning with coal-tar products and primary tuberculosis of the spleen, must be excluded, but in all these conditions, as a rule, the number of red blood corpuscles is actually diminished. Treatment has thus far been unavailing and must be essentially symptomatic.

From the clinical picture and the postmortem findings it seems legitimate to conclude that the disorder under consideration is a definite clinical entity whose origin is to be sought in disease of the bone marrow resulting in the production of an increased number of red corpuscles.

1. Liverpool Medico-Chirurgical Journal, July 19, 1906, p. 33.

MEDICAL HISTORY.

As commonly understood, the special function of the medical historian is to trace the growth of medical knowledge in general. Frequently the historian concerns himself more or less exclusively with the great and epochal achievements in medicine, achievements that often mark the crest of a large wave of progress, and he usually dwells with special fondness on the work and the life of the great masters. Now it is generally believed that biography must ever be one of the main sources for historical material. Events group themselves easily about the chief actors at any stage of progress. And certainly biography is a most interesting and inspiring form of reading; our medical historical literature, with its schedule of facts, dates and names, we fear would seem rather dry and of limited interest were it not that so much of it is biographical.

There seems to be a growing conviction, however, that medical history writing in the past has been too exclusively medical and that the relations of medicine to general culture have been neglected too long. In this country William Browning[1] recently called special attention to the desirability of a departure from the chronology of great medical men and brilliant episodes in medical investigation and discovery as the standard type of medical history. A much more comprehensive

1. The Medical Library and Historical Journal, 1905, vol. III, p. 217.

conception of medical history is needed. The relations of medicine to things outside of itself, to other sciences and arts, to the general progress of culture; the social and public relations of medical men at various times and in various parts of the world; the life and customs of the practitioner in former days; the development of medical education, especially in our own country at different epochs and under different auspices, these are some of the items in the outline sketched by Browning for the new departure in medical history writing. Browning emphasizes the fact that in the past medicine has held itself more or less apart from the general public, and this attitude is reflected, perhaps, in the fact that medical history in the past has been dealing so largely with things purely medical. The newer history would tend to show a "more open medical life, a closer relation of medicine to the public, an enlargement of the cultural side."

Last year also saw the publication of a systematic treatise along the lines just indicated, namely, Pagel's *Grundriss eines Systems der medicinischen Kulturgeschichte*,[2] which deals more particularly with German conditions and in which the relations between medicine and other activities are discussed by special topics, e. g., "Theology in Medicine," "Medicine in Theology," "Law and Medicine," "Medicine and Natural Sciences," "Social Medicine," "Medicine and Poetry," etc. It would seem as if this mode of treatment would tend to awaken a more general interest in the historical aspects of medicine. Now, whether it be necessary or desirable to separate this kind of medical history from general medical history may be questioned. Be that as it may, in the future this new or enlarged theory of medical history no doubt will influence medical historical work in various ways. The expression in these two different ways in America and Germany of the same general trend of thought indicates that there is a growing tendency to amplify the scope of medical historical work in the directions outlined and that results of much interest will develop.

THE CALCIUM TREATMENT OF THE SERUM DISEASE.

The peculiar pathologic phenomena, such as urticaria and articular pains, which may occur after the introduction of foreign serum of any kind, have been grouped together under the convenient name of the serum disease. We recently[3] discussed the theories as to the causation of this remarkable condition. Many efforts have been made to prevent this disease, which constitutes an annoying disadvantage incidental to serum therapy of all kinds.

Some ten years ago Wright[4] showed that as the symptoms of the serum disease develop there occurs a diminution in the coagulability of the blood and that calcium salts appeared to have a preventive effect. Hence he suggested that calcium salts should be administered in order to forestall urticaria, etc., and that they should be given also to remove more rapidly these troubles when they have supervened.

Recently the good effects of the calcium salts in these directions, especially the first, appeared to have been realized very satisfactorily in a series of systematic observations by Arnold Netter[5] in Paris on patients injected with diphtheria antitoxin. In one series of 258 cases calcium chlorid was given by the stomach in one-gram doses on the day of the injection and for the two following days. Of those so treated, 12 patients had eruptions, while of the 258 controls who received no calcium 35 had eruptions. The calcium had no harmful effect whatever on the action of the antitoxin proper, as the mortality of the two groups of cases was the same.

It would seem desirable to make further studies on this line in order better to determine the dosage of the calcium in proportion to the age of the patient and the quantity of serum used, and also the most desirable time for its administration with reference to the time of the injection of the antitoxin. Thus from the sixth to the tenth day after the injection would seem to be a favorable period for the calcium treatment. Either the chlorid or the lactate of calcium may be used. There is abundant opportunity for the thorough testing of this matter in our hospitals for acute infectious diseases, and it is to be hoped that attending physicians will take it up in a proper manner.

VENEREAL DISEASES AND THE PUBLIC HEALTH.

The homely adage, "An ounce of prevention is worth a pound of cure," is rapidly acquiring new and stronger significance. If it is true that "there is no such thing as science for the million," it does not follow that society in general can not be greatly benefited by being enlightened on matters regarding hygiene and the prevention of disease.

The work done this year in the Section on Hygiene and Sanitary Science was of great value, and much good is to be expected from the deliberations of the committee appointed by the Association to outline a plan of organization of a department of public instruction. Already societies of social hygiene have been formed in New York, Philadelphia, Chicago and elsewhere, here and abroad, for the purpose of checking the spread of venereal diseases.

No ailments are more common than these, yet there is none more insidious and pestilential. The number suffering from them can not be accurately determined. Some one has estimated that five million people in this country are or have been tainted with syphilis; this is probably an overestimate, but the number is enormous. The number of those affected with gonorrhea is un-

2. Berlin, S. Karger, 1905.
3. THE JOURNAL, A. M. A., April 7, 1906, p. 1034.
4. Lancet, Jan. 18, 1896, and Sept. 19, 1896.
5. Compt. rend. Soc. de biol., 1906, vol. lx. p. 278.

doubtedly much greater than of those suffering from syphilis. Yet the subject has, until recently, received little attention as compared with its far-reaching consequences.

No statistics can measure the destructiveness of these diseases. Death rates indicate but a fraction of their results, but every medical man knows the terrible consequences that too often follow them. The horrible mutilation and disfigurement of neglected syphilis is not less dreadful than the later outcropping of the disease after the interval of hope and forgetfulness, nor less disastrous than its perpetuation in the lives of another generation.

Gonorrhea, often considered proper subject for jest and ridicule, fills our institutions of the blind with its victims and brings to the operating table of the gynecologist the largest proportion of his patients, the innocent sufferers from the "indiscretion" and ignorance of youth. The effect of this festering mass of disease on the future welfare of our race is more than a subject for speculation. Its destructiveness has been observed in the past, and there is reason to believe that it is even now threatening that enormous vitality which has given supremacy to the Anglo-Saxon peoples.

Perhaps one reason why this subject has not received the attention it deserves is its very extensiveness. It touches every rank and grade of society; it goes into the home and drags out the family skeleton. It involves more than a scientific or even an economic question; it brings in, wholesale, the problem of social morality and the controllability of sexual passion. It is excused on the ground of natural impulse or the violence of human affection. It is part of a condition to be recognized but not discussed; it is "taboo" in good society; only to be jested about over the wine or hinted at, with bated breath, over the teacups. Venereal diseases are most insidious. They are born of the night and go through life hidden. The consumptive carries his brand on his forehead, and though still bound by ties of love and affection to those dear to him, he must be shunned like a leper and segregated as dangerous to the welfare of society. The sufferer from "private disease" is usually, to outward appearance, sound of body, though he may be physically and morally rotten. His appearance, therefore, does not create apprehension and society accepts him without question.

The nature and results of venereal afflictions should be made common knowledge. Ignorance is the nursery of vice and suffering, and there is no class of diseases whose awful consequences the public comprehends less than these.

The remedy lies in education in the broadest meaning of the word.

FOURTH OF JULY INJURIES AND TETANUS.

In this issue appears our fourth annual analysis of the results of the celebration of Fourth of July. With it appear summaries of the analyses of the three previous years, and by a comparison of these sets of figures can be obtained a valuable estimate of the results of the agitation which has been kept up since 1903, when The Journal published the statistics of the cost of our Independence day celebration.

We may fairly divide the casualties of the Fourth into two classes, tetanus and injuries not associated with tetanus. The medical profession can be considered directly responsible only for some of the cases in the first class, while the responsibility for the injuries that cause the tetanus, as well as for all the other calamities, may be justly charged to popular ignorance and carelessness and to official incompetence and legislative indifference.

When we study the figures of cases in these two classes, we find a most striking difference. Tetanus cases, which numbered 415 in 1903, dropped in 1904 to 105, in 1905 to 104, and in 1906 to 89. This improvement is not due to lessened opportunity for tetanus infection, for the total number of Fourth of July injuries reported has risen steadily from 4,449 in 1903 to 5,466 in 1906. We have the best of grounds for believing that this great decrease in tetanus and the saving of over three hundred lives yearly is due chiefly to improved care of the dangerous blank cartridge wounds. Proper cleansing and drainage have prevented many cases of tetanus; prophylactic use of antitoxin, the only certain safeguard, has prevented many more. In this issue we publish most conclusive figures showing the value of antitoxin prophylaxis, compiled by the Chief Dispensary Physician of the St. Louis City Health Department, Dr. H. J. Scherck, which support fully the attitude we have long maintained concerning the absolute necessity for the prophylactic use of antitoxin in all severe injuries caused by explosives. It will be noticed in our statistics that the number of cases of tetanus from wounds other than blank cartridges, of which the cannon cracker is the worse offender, has remained practically constant, so that this year these cases exceeded, for the first time, the number due to blank cartridges, whereas in 1903 they formed but about one-eighth of the total. Evidently the agitation concerning the blank cartridge has borne fruit, but the danger of tetanus from other causes has not been so fully appreciated. There is room for improvement along this line.

As to the eighty-nine cases of tetanus that did develop this year, we note with pleasure, on reading the newspaper reports, an absence of the once familiar expression: "The wound was dressed by a doctor, who said it was not dangerous." Nearly all of the eighty-nine cases, so far as we can ascertain, developed in persons who had received no medical attention until after the onset of the tetanus. On this feature of the year's statistics the profession may look for just congratulation. The chief work that lies before us is in the direction of encourag-

ing popular education and municipal activity. If each medical society would take it on itself to see that everything possible in the way of legal restriction of dangerous methods of Fourth of July celebration is accomplished in its district, and would assist local editors in warning the public of the consequences of such methods of celebration, the improvement in the figures for injuries and death following the next Fourth might be as greatly improved as the figures for tetanus have been improved since 1903.

THE ETIOLOGY OF ECZEMA.

Despite the prevalence and the frequency of eczema, and notwithstanding the vast amount of study that has been given to the subject, it must be admitted with chagrin that the etiology of this disease is as yet far from settled. As a matter of fact, differences of opinion exist, even among experts, as to the precise limitations of the disorder, and, although by the majority it is considered a clinical entity, by a few it is looked on as merely a symptomatic manifestation. In a discussion of this subject Dr. J. M. H. MacLeod[1] points out that, according to prevailing views as to the nature and causation of eczema, it is variously thought to be (1) of parasitic origin, (2) due to a variety of irritants, internal or external, acting in a predisposed individual, (3) the result of nervous derangement in a predisposed person. It is almost universally agreed that the primary essential is a special predisposition or idiosyncrasy on the part of the individual. Age, sex, race and climate are without apparent influence in the etiology. Heredity may be a predisposing factor, in so far as it is responsible for delicacy of the skin, while states of enfeebled health, resulting from derangement of alimentary, renal or nervous function, may operate in a similar manner by lowering the resisting power of the skin and rendering it more susceptible to the action of irritants. Various pathologic conditions of the skin, such as xerodermia, ichthyosis, senile skin, likewise predispose to attacks of eczema. When the predisposition, whether congenital or acquired, is present, the disease may be excited by divers irritants acting either from within or from without.

MICHIGAN CHECKS DISREPUTABLE ADVERTISING.

The Michigan Legislature, in 1903, passed an act giving to the State Board of Registration the power to revoke the license of any physician publishing any disreputable or offensive advertisement. This law has been declared constitutional by the Supreme Court of Michigan. This is the end of a long contest against the law by the disreputable advertisers and affords a precedent which we hope will be extensively utilized. In the present reform enthusiasm it would be well if the advertisements of quacks attracted some share of the public attention. These vampires work on the ignorance and credulity of their victims first, and later, after they have got them in their power, they finish up the job by working on their fears. From first to last these individuals are frauds, and it is certainly not good public policy to permit the free exercise of their criminal talents. Revoking the license will only go a little way, however. It only hits those who have a license. A law similar to the Michigan one should be passed in every state in the Union, but further than this, there should be enactments making not only disreputable advertisements, but any other kind of quack advertisement intended to defraud, a statutory criminal offense.

1. Practitioner, July, 1906, p. 98.

HEALTHFULNESS OF THE LAKE REGION.

Many years ago, in the pre-aseptic days, a prominent Chicago surgeon published a paper showing that better results in surgery were obtained in the lake region than in other parts of the country. This paper was the subject of some dispute and discussion at the time. Now comes Chicago's assistant health commissioner, Dr. F. W. Reilly, with figures comparing the death rate of the five principal lake cities, Chicago, Cleveland, Buffalo, Detroit and Milwaukee with the other principal cities of the country situated on the seacoast and on rivers, and showing a decided advantage in favor of the former. From his figures it appears that the death rate of the river cities, Philadelphia, St. Louis, Pittsburg, Cincinnati, New Orleans and Washington, is 35 per cent. higher than the rate of the lake cities mentioned, and that the four great seaports, New York, Boston, Baltimore and San Francisco, is 31.4 per cent. higher. While these facts may be questioned by some and do indeed seem rather striking, there are certain conditions that may help to explain them. Every one of the five lake cities mentioned is situated directly on the shores of a large body of fresh water; Detroit is the only apparent exception, but it is practically on the shore of Lake St. Clair, which washes its northern portion. All these cities obtain their water supply from these lakes, and though it may be to some extent locally polluted, the risks of such pollution are, at the worst, less than those in the river cities and those on the seaboard which have to obtain their supply from inland sources. San Francisco alone of the seaboard cities can be said to be situated almost on the ocean shore. The others all have more or less deep inland running harbors, but the conditions here and at New Orleans, which is also situated near a considerable body of fresh water, are somewhat special and may modify the death rate unfavorably in one way or another. One thing also appears reasonably probable: The lake climate, while somewhat irritating in certain portions of the year, is on the whole a healthy one. The diseases it favors are not those that most increase the mortality rate, and the effect of a large body of practically sterile water, much more sterile indeed than ocean water, can not but be favorable to health.

Medical News

ARIZONA.

Personal.—Dr. William Duffield, Phoenix, Superintendent of Health of Arizona, is about to move to Los Angeles, Cal.

State Hospital Filled with Mexicans.—Arizona for several years has been reported to have the highest percentage of insane of any subdivision of the United States. It is notable, however, that although the Mexican population of the territory is only one-sixth of the total, more than one-half of the insane of the territorial asylum are Mexicans. An investigation is now being made of the charge that Mexicans have been smuggled across the border simply for the purpose of securing treatment in the territorial asylum. It is understood that this work will be continued in the county poorhouses and hospitals, and the Mexican government, after representations made through diplomatic channels, has signified its entire willingness to receive the Mexican insane, and is acting through its consul at Nogales.

ARKANSAS.

Medical Society Will Protect Visitors.—The Hot Springs Medical Society proposes to take up a fight against "drummers," not by attempting to secure legislation, but by causing the enforcement of the laws on the statute books of the city and state.

Hospital News.—A contract has been let for the erection of a four-story building for the medical college and hospital for the College of Physicians and Surgeons, Little Rock, to cost $50,000.——The ladies of Helena have organized an association for the purpose of establishing a free hospital in that city.

How Drummers Work.—The "drummers" of Hot Springs have now instituted a system which makes it more difficult for the officers of the law to proceed against them. In the old days a man would approach a visitor and "drum" him to the doctor by whom he was employed; but now one drummer meets the visitor at the train and takes him to a boarding-house, another recommends a doctor, a third, usually introduced by the second drummer, introduces him to a doctor, and a fourth may persuade him to take a few baths before consulting the doctor. In this way the bath houses can not be held responsible and it is exceedingly difficult to make a case against the drummers.

To Secure Enforcement of Gantt Law.—The Garland County-Hot Springs Medical Association has devised a plan to secure the proper enforcement of the anti-drumming law by making it a remunerative business for the officer or officers who are instrumental in securing the conviction of violaters of the law. This society offers and agrees to pay a reward of $500 for the conviction of any physician or surgeon violating the law, to be divided as follows: $125 for each conviction in the Hot Springs police court; $175 for each conviction in the Circuit court of Garland County or in any county to which the case may be brought on a change of venue, and $200 additional for the affirmation of each and every conviction by the Supreme Court of the state. The society further agrees to pay a reward of $1,000 for the conviction of any person convicted of perjury committed in giving testimony as a witness at any trial for the violation of this law.

Faculty of University Medical Department.—The twenty-eighth annual session of the Medical Department of the University of Arkansas, Little Rock, will open October 1. The following officers and faculty have been elected for the coming year: Edwin Bentley, M.D., president; James H. Lenow, M.D., Edwin R. Dibrell, M.D., Frank Vinsonhaler, M.D., and Frank L. French, M.D., secretary of the board of directors; Professors—Claiborne Watkins, M.D., emeritus professor of medicine; Edwin Bentley, M.D., dean and professor of principles and practice of surgery; James H. Lenow, M.D., professor of diseases of genitourinary organs; Louis R. Stark, M.D., professor of gynecology; Edwin R. Dibrell, M.D., professor of medicine; Frank Vinsonhaler, M.D., professor of ophthalmology and otology; Thomas N. Robertson, A.B., LL.B., professor of medical chemistry and toxicology William H. Miller, M.D., professor of obstetrics; Frank L. French, M.D., secretary and treasurer, and professor of general descriptive and surgical anatomy; Carle E. Bentley, M.D., professor of principles and practice of surgery and clinical surgery; John R. Dibrell, M.D., professor of clinical microscopy and bacteriology; William C. Dunaway, M.D., demonstrator of anatomy; Anderson Watkins, M.D., professor of principles and practice of surgery and adjunct to chair of clinical surgery; Caleb E. Witt, M.D., professor of materia medica, therapeutics, hygiene and botany; Morgan Smith, M.D., professor of physiology, and E. E. Moss, A.M., LL.B., professor of legal medicine. Lecturers—Morgan Smith, M.D., lecturer and clinical instructor on diseases of children; R. L. Russell, M.D., lecturer and clinical instructor on practice of medicine; O. K. Judd, M.D., lecturer and assistant to chair of anatomy; Mahlon D. Ogden, M.D., lecturer on gross and microscopical pathology; Alexander E. Harris, M.D., lecturer on clinical medicine and physical diagnosis; James L. Dibrell, M.D., lecturer and instructor in electrotherapeutics, *x*-ray therapy, and dermatology; Oscar Gray, M.D., assistant to chair and clinical instructor of gynecology; John G. Watkins, M.D., assistant to chair of otology and ophthalmology; Arthur R. Stover, M.D., assistant to chair of practice of medicine; James C. Cunningham, M.D., assistant to chair of obstetrics; James L. Dibrell, M.D., assistant to chair of bacteriology; M. D. McClain, M.D., assistant to chair and clinical instructor of diseases of genitourinary organs;; Milton Vaughan, M.D., assistant to chair of materia medica and therapeutics; C. V. Scott, M.D., assistant to chair of clinical surgery; Aaron L. Carmichael, M.D., assistant demonstrator of anatomy; Oscar Gray, M.D., assistant demonstrator of anatomy; M. D. Ogden, M.D., assistant demonstrator of anatomy; S. Smith Stewart, M.D., assistant demonstrator of anatomy; W. M. McRae, Ph.G., instructor in chemical laboratory, and William Goodwin, M.D., prosector of anatomy.

CALIFORNIA.

Board of Health Praised.—At a meeting of the San Francisco Board of Health, August 2, a letter from the secretary of the State Board of Health was read, congratulating the Health Commission of San Francisco on its efficient work during and since the great calamity, and stating its belief that the good health of the city and freedom from contagious diseases was largely due to the scientific and indefatigable work of the commission.

ILLINOIS.

Personal.—Dr. Franklin E. Wallace, Monmouth, left for Europe August 15.——An operation was performed at St. Louis, August 3, on Dr. J. Bernard Carey, Donnellson, for vesical disease.

Judgment Rendered Against Phenomenal Kraus.—The State Board of Health has filed 31 suits of $200 each against "Phenomenal" Kraus, the head of an advertising medicine concern. Judgment was rendered against him for $1,000, in Peoria, two weeks ago.

Public Bathing Beach for Moline Assured.—The free public baths, the establishment of which the health officer of Moline, Dr. R. C. J. Meyer, has urged for a long time, are now assured. A building is to be constructed to cost more than $1,000, which will contain a department for men and one for women, and will in addition be used as headquarters for the Moline ship's crew of the Illinois Naval Reserve.

Phthisis Camp at Dunning.—A resolution was passed unanimously, August 13, by the county board, granting the Chicago Tuberculosis Institute the privilege of establishing a camp for the benefit of consumptives in the grounds of the Cook County Institutions, Dunning. The camp will be kept open until November 1, and the first inmates will be twenty female patients. Drs. Harry B. Favill, Ethan A. Gray and Theodore Sachs will be the attending physicians.

Prompt Action Checks Epidemic.—The Health Commissioner of Moline, Dr. Robert C. J. Meyer, informs us that in the case of the family afflicted with diphtheria, in which the father wished to depend on divine healing and witch hazel, as noted in THE JOURNAL of July 28, he at once placed a physician in charge. By good care and the liberal use of antitoxin, not a death occurred from the disease, although seven children in the family were infected, and furthermore, no new case of diphtheria developed outside of the family, in spite of the lack of preliminary precautions.

Chicago.

Loan for Hospital.—The Swedish-American Hospital Association, located at Green and Sixtieth streets, has obtained a loan for $35,000, for ten years, at 5 per cent.

Personal.—Dr. Samuel R. Slaymaker has gone to Europe.——Dr. and Mrs. Edson B. Fowler have returned after a year in Europe.——Dr. Ira Frank, who recently received severe injuries in an automobile accident, is reported to be slowly improving.

Decrease in Communicable Diseases.—There was a decided decrease in the number of contagious and infectious diseases reported last week. There were 21 fewer cases of diphtheria and 19 fewer cases of scarlet fever, and the total of 96 is 45 fewer than the total for the week ended August 4.

Hospital Report.—The seventeenth annual report of Wesley Hospital shows that since 1901 the hospital has grown from an institution of 28 to one of 150 beds, and that now more than 3,000 patients are cared for annually. The total number of operations performed during the year was 2,082, and 691 or 22 per cent. of the total number received help from the free bed fund.

Deaths of the Week.—The number of deaths for the week ended August 11, was 603, 102 more than for the preceding week, and 64 more than for the corresponding week of 1905. The excessive humidity was undoubtedly responsible for this increased mortality, which has been more among the young and those suffering from chronic diseases. The death rate for the week is equivalent to an annual mortality of 15.34 per 1,000. Of the deaths reported 192 were of infants under 1 year of age; 56 of children between 1 and 5, and 103 of individuals over 60. There were 14 more deaths from nephritis, 5 more from consumption, 34 more from acute intestinal diseases, 13 more from nervous diseases, 4 more from sunstroke, and 27 more from violence than in the preceding week. The chief death causes were: Acute intestinal diseases, 150; consumption, 63; violence, including suicide, 51; nephritis, 48; pneumonia, 29; cancer and heart diseases, each 26; and nervous diseases, 23.

INDIANA.

Hospital Dedicated.—The Lutheran Hospital, Fort Wayne, was dedicated August 6.

Smallpox.—Two cases of smallpox are reported from Kendallville, and the infected houses are under strict quarantine.

Personal.—Dr. T. Henry Davis, city health officer of Richmond for 34 years, has resigned, and Dr. Charles S. Bond has been appointed to succeed him.——Dr. Milton S. Hopper, Lafayette, was operated on for appendicitis, August 3.——Dr. Thomas A. Kearns, Muncie, has returned from Europe.

Sanitary Regulations of Schools.—The State Board of Health has directed that the following regulations be complied with before the schools in the state are opened: Windows are to be so arranged that the sashes will move easily in either direction; blinds of some dark color are to be placed around the windows, galvanized iron guards are to be placed around the stoves, separate closets for both sexes are to be erected, kept in sanitary condition, and wood walks built to them from the school buildings. The board also recommends that the basement of the school buildings be enclosed with solid walls and have a cement floor, but this is not mandatory.

Inspection of Slaughter Houses.—The Secretary of the State Board of Health has prepared printed forms to be sent to the health officers of the different cities and towns of the state in connection with the inspection of the slaughter and packing houses. Among the points covered by these questions are the following: "Location—Is it near to habitations; how far from corporation, etc.? Building—Is it wood, brick, etc.? Describe the immediate surroundings and approach. Are hogs fed on the offal? If so, are they killed for food or sold? Describe condition of hog yard. Are animals for slaughter properly cared for and inspected? Is tallow or lard rendering done cleanly and skillfully? Are flies excluded, and is the meat cooled in cold storage? Are tanking operations carried on? If so, are they sanitarily conducted, and is an open or closed tank used? Are sausages and chopped meats prepared, and if so, is the work cleanly and properly done? Are chemical preservatives used? Is the meat well protected from flies when hauled away, and is it handled in a cleanly manner?"

KENTUCKY.

Proposed Sanitarium.—In accordance with the action taken by the general association at the recent conference in Richmond, the Southern Baptist Church of Kentucky has taken the initial steps toward establishing a Baptist Sanitarium in Louisville.

College Commencement.—The annual commencement exercises of the Medical Department of Kentucky University, Louisville, were held July 31, when a class of 84 received diplomas from President Jenkins. The address of the evening was delivered by Rev. Charles J. F. Anderson, M.D., of Virginia.

Personal.—Dr. A. D. Park, Rockport, is ill with typhoid fever.——Dr. Ap. Wright, Fox Creek, who was operated on early in July for appendicitis, has returned home.——Dr. Jouett Menefee, an interne of the City Hospital, Louisville, has resigned.——Dr. Henry H. Duke, Louisville, has been appointed assistant surgeon general of the United Sons of Confederate Veterans.

MAINE.

Graduating Exercises.—At the graduating exercises of the Medical School of Maine at Bowdoin College, Brunswick, the address to the class was delivered by Rev. Raymond Calkins, Portland, and President Hyde conferred diplomas on a class of 17.

Maine Sanatorium.—The Maine Sanatorium Association, Hebron, for the reception of people infected with incipient tuberculosis, opened its first building in the latter part of 1904. This building had accommodations for only 18 patients. At a recent meeting of the trustees it was voted to have a new building, costing about $13,000, to accommodate 24 additional patients. This will bring up the capacity of the institution to about 50 patients.

MARYLAND.

Baltimore.

Violent Deaths.—During the two weeks ended August 11 there were 54 deaths reported from violence in Baltimore.

Accident.—Dr. William C. Kloman fell from a street car August 4 and dislocated his right shoulder and cut his head.

National Guard Changes.—Major St. Clair Spruill, surgeon Fifth Maryland Infantry, has resigned, and Captain S. Griffith Davis, assistant surgeon, will be commissioned major and surgeon in his place.

Eminent Chemist Dead.—Dr. Gustavus W. Lehmann, chief of the Chemistry Department of Baltimore and United States Government chemist for the port of Baltimore, a graduate of the University of Wiesbaden, Germany, died at his home in Baltimore, August 5, aged 61.

Baltimore Travelers.—Dr. Arthur M. Shipley has sailed for Europe.——Dr. Eugene McE. Van Ness is in England.——Dr. Ira Remsen is spending the summer at Trout's Neck, Maine.——Dr. Charles W. McElfresh is taking a trip to Pittsburg, Chicago, and Rochester, Minn.

Library Report.—The report of the library of the University of Maryland shows that 1,080 volumes were added during the last year, making a total of more than 6,280. The largest addition was the Miltenberger collection. There are now 46 medical periodicals on the subscription list. The library is open during the year free to all readers, but a small fee is charged to outsiders for borrowing the books.

MASSACHUSETTS.

Hospital Dedication.—The dedicatory exercises of the Woronoco surgery, connected with Noble Hospital, Westfield, were held August 29.

Reorganization of Sanatorium Staff.—The trustees of the State Sanatorium for Tuberculosis, Rutland, have agreed on a plan for the reorganization of the staff. It is proposed that the visiting physicians be dropped and that the immediate management of the institution be vested in a single resident medical expert as superintendent, who will have under him assistants representing the homeopathic school of medicine as well as the regular profession.

Disposal of Boston Garbage.—The Boston Board of Health recently received a petition from business men relative to a change in the manner of handling the garbage of the city. For many years it has been brought in wagons to the wharf, transferred to scows, and then carried out to sea and dumped. The neighboring business men complain that the odor from the garbage on the wharf is extremely offensive. The board expressed its desire to remedy or abate the nuisance.

Personal.—Dr. William R. Lyman, Worthington, has been nominated as associate medical examiner of the second Hampshire district, vice Dr. William J. Parmalee.——Dr. George A. Bancroft, Natick, has been nominated associate medical examiner for the eighth Middlesex district, vice Dr. William T. Richardson, resigned.——Dr. J. F. Alleyne Adams, Pittsfield, has been appointed a trustee of the State Sanatorium for Tuberculosis, Rutland.——Dr. Edward H. Place, Boston, suffered amputation of a finger for septicemia, due to the bite of a child suffering with diphtheria.

MINNESOTA.

Sanitarium Established.—The Rochester Sanitarium Company has organized and purchased a building which will be converted into a sanitarium for the convenience of the patients of St. Mary's Hospital. The building is to be enlarged and remodeled at an expense of $35,000.

Association Meets.—The Southern Minnesota Medical Association held its annual meeting at Winona, August 10, and elected the following officers: President, Dr. Amos L. Baker,

Kasson; vice-presidents, Drs. George J. Tweedy, Winona, and Milan J. Hart, Le Roy; and secretary and treasurer, Dr. William T. Adams, Elgin (re-elected).

State to Inspect "Patent Medicines."—The State Dairy and Food Department has announced that a careful examination and analysis of all "patent medicines" on the market will be made, that the contents of each medicine will be published in the weekly *Bulletin*, and the presence of opiates, alcohol, or other deleterious substances made known.

Supreme Court Confirms Decision.—By an order of the Supreme Court, July 27, concerning Dr. Theron H. Bly, Minneapolis, convicted of having performed a criminal operation, the decision of the lower court was sustained. Dr. Bly must, therefore, serve his sentence of imprisonment for three and one-half years in the state penitentiary unless the Supreme Court allows an appeal.

MISSOURI.

Smallpox at Walker.—At Walker, near Nevada, eight cases of smallpox are reported in two houses. Both houses are under quarantine.

Roof Promenade for Hospital.—The roof of the new addition to the Emergency Hospital, Fourteenth and O'Fallon streets, St. Louis, 34 by 44 feet, is to be used as a promenade for the patients.

St. Louis Deaths.—During the week ended July 28, 182 deaths were reported. Diseases of the digestive tract caused 24 deaths; tuberculosis, 21; violence, including suicide, 15; and heart disease, 14.

Personal.—Dr. Willard Bartlett, St. Louis, was operated on July 5, at St. Anthony's Hospital, Peoria, and is making satisfactory recovery.——Dr. H. R. Lucas has been appointed assistant surgeon for the C. and E. I. R. R., at Chaffee.

Free Diphtheria Antitoxin.—The Health Department of St. Louis will furnish free of charge to patients who are financially unable to pay, diphtheria antitoxin. The patient may remain under the care of his physician, but a dispensary physician will administer the antitoxin.

Sanatorium Corner Stone Laid.—The corner stone of the State Sanatorium for the Treatment of Incipient Tuberculosis was laid at Mount Vernon with appropriate exercises August 15. Drs. William Porter and George Homan of St. Louis, the governor, attorney general, and secretary of state, delivered addresses.

Personal.—Dr. Albert H. Hamel, De Soto, has been appointed a member of the State Board of Health for a term of four years.——Dr. M. T. Ricketts, St. Joseph, has been elected president and Dr. William S. Carrion, St. Joseph, secretary of the Interstate Medical Society, which was organized in Kansas City, July 27, by the colored physicians of Kansas and Missouri.

Free Clinic.—The Health Department of St. Louis has opened a clinic for communicable lung diseases, and all physicians of the city have been requested to refer patients among the worthy poor to this clinic for treatment. It is held at the City Dispensary, Eleventh and Chestnut streets, and is open from 7 to 10 a. m., from 4 to 6 p. m., and from 7 to 8 p. m. week days, and from 9 to 10 a. m. Sundays. Dr. Louis M. Warfield is assistant dispensary physician in charge.

NEBRASKA.

Personal.—Dr. Orville Rockwell has been appointed assistant physician in the Nebraska Sanitarium, College View.

Asylum News.—Dr. Frank S. Nicholson, assistant superintendent of the Norfolk Hospital for the Insane, vacated that position July 30, and Dr. H. Douglas Singer has assumed the duties of the position.

New Hospitals.—Ground has been broken at Broken Bow for a new $10,000 hospital to be erected under the supervision of Dr. George F. Bartholomew.——Work on the new Methodist Hospital, Omaha, which was stopped two years ago on account of lack of funds, was resumed July 27.

NEW YORK.

Personal.—Dr. Jacob Fisk, Canajoharie, has gone to Europe.——Dr. John Van Duyn, Syracuse, was recently injured in a collision between a street car and his automobile, and suffered severe scalp wounds.

Deaths and Their Causes.—During June 9,937 deaths were reported in the state, which is equivalent to an annual death rate of 14.5 per 1,000. Of the decedents, 1,836 were under one year of age, 1,940 between one and five years of age, and 2,839 sixty years and over. Epidemic diseases caused 656 deaths, of which 173 were due to diphtheria, 128 to measles, 72 to cerebrospinal meningitis, 71 to typhoid fever, 60 to whooping cough, 65 to scarlet fever, 40 to erysipelas, 22 to influenza, 13 to malaria, and 3 to smallpox. Among the principal death causes were, tuberculosis, 1,141; pneumonia, 868; nephritis, 635, and infantile diarrhea, 441.

New York City.

Summer Home Burned.—The summer home of Dr. James M. Winfield, Brooklyn, at Hampton, Conn., was struck by lightning and burned July 10. The loss was about $5,000, covered by insurance.

Polyclinic Clerk Sentenced.—In the Court of General Sessions, George W. Curtis, defaulting finance clerk of the Polyclinic Medical School and Hospital, was sentenced to imprisonment for three years and six months at the state penitentiary, Sing Sing.

Hospital Dedicated.—With appropriate exercises, the new hospital building in connection with the sanitarium for Hebrew children at Rockaway Park, was dedicated July 28. The chief address was made by Dr. Samuel Kohn, president of the Hebrew Sanitarium. The building is frame, two and a half stories high, and has accommodation for about 75 patients.

Contagious Diseases.—There were reported to the sanitary bureau for the week ended August 4, 406 cases of tuberculosis, with 157 deaths; 159 cases of diphtheria, with 17 deaths; 144 cases of measles, with 10 deaths; 133 cases of typhoid fever, with 17 deaths; 57 cases of whooping-cough, with 12 deaths; 56 cases of scarlet fever, with 4 deaths; 14 cases of cerebrospinal meningitis, with 6 deaths, and 8 cases of varicella, a total of 977 cases, with 223 deaths.

No Typhoid Epidemic.—There has been some alarm because of an increase in the number of typhoid cases, but the health department sees no need for alarm, as typhoid is an autumnal disease. Last year there were only 172 cases reported in July in Manhattan, while in the three succeeding months the figures rose to 313, 359 and 210, respectively. All persons are advised to boil the water coming from faucets and used for drinking purposes until there is adequate filtration.

Personal.—At the annual meeting of the American Laryngological, Rhinological and Otological Society, held in Kansas City, Dr. Wendell C. Phillips was elected president.——Dr. William E. Beardsley, Brooklyn, accompanied by his wife and daughter, is preparing to take a vacation trip through British Columbia.——Dr. William Adler, a sanitary inspector, was assaulted during the performance of his duties by a janitor who resented what appeared to him to be undue interference.

Victory Over Mosquitoes.—Under the direction of Dr. Doty, who secured an appropriation from Mayor McClellan of $17,000, Staten Island has been practically rid of mosquitoes. An area of salt marshes equal to twenty square miles has been drained and transformed into solid ground. It is estimated that 230 miles of ditches, ten inches wide by two feet deep, have been dug this summer. Literature giving directions for the care of private premises directed toward the prevention of the propagation of mosquitoes has been distributed.

OHIO.

Typhoid Fever.—Typhoid fever is increasing to such an extent in Cincinnati that the use of two additional wards for the overflow in the City Hospital has been rendered necessary.

Health Board Abolished.—The City Council of Hamilton has abolished the Board of Health and vested its rights, powers and duties in a Board of Public Service.

Hospital News—The Crawford County Hospital, Bucyrus, was opened August 1. The hospital is in charge of Dr. W. C. Gates, is open to all physicians, and has accommodations for twenty patients.

Smallpox.—The Secretary of the State Board of Health, in his annual report, states that since 1899, there have been 29,457 cases of smallpox in the state, and 890 deaths, or a mortality of about 3 per cent.

Ill and Injured.—Dr. Lewis M. Early, Columbus, is convalescent after amputation of his left index finger.——Dr. John H. Lowman, Cleveland, who was operated on for appendicitis July 23, is making a good recovery.——Dr. Francis W. Johnson, Cincinnati, is seriously ill at his home.

Personal.—Dr. Charles D. Hauser, Youngstown, returned from Europe July 31.——Drs. Oral Tatge, Columbus, and Dr. J. R. Montgomery, Steubenville, have been appointed to the medical staff of the Massillon State Hospital, vice Drs. Harry

F. Vaughan and James M. McGeorge, resigned.——Dr. H. S. Rochester, Columbus, left August 9 for the Philippine Islands, where he will enter the government service as an interne in the Manila General Hospital.

OKLAHOMA.

Hospital Addition.—Dr. Joseph B. Rolater, Oklahoma City, announces that he will soon make an addition to his hospital, to cost $10,000.

Personal.—Dr. Gregory A. Wall, Oklahoma City, recently suffered a severe injury of the ankle in a runaway accident.——Dr. L. Haynes Buxton, Oklahoma City, is taking a trip to New York and Toronto.——Drs. Archa K. West and H. Coulter Todd have been re-elected dean and secretary, respectively, of the faculty of College of Medicine of Epworth University, Oklahoma City.

Hospital Corps Transferred.—The Hospital Corps of the National Guard has been transferred, by order, from Woodward to El Reno. Captain Floyd H. Racer, Woodward, assistant surgeon, has been commissioned major and surgeon and Lieutenant Fred H. Clark, assistant surgeon, El Reno, has been made captain and assistant surgeon. Dr. Hugh Scott, Waukomis, has been appointed assistant surgeon with the rank of lieutenant.

PENNSYLVANIA.

Personal.—Dr. Jackson Taylor, Coatesville, is suffering from a fractured arm, the result of the overturning of his automobile.

Donation to Library.—Major James Evelyn Pilcher, Carlisle, has donated 25 cases of books to the Harrisburg Academy of Medicine.

Hospital Struck by Lightning.—The Good Samaritan Hospital at Lebanon was struck by lightning August 7. The ceiling in the men's ward was torn down and every room was filled with sulphurous smoke. The patients were panic-stricken, but none was injured.

Smallpox.—More than 20 cases of smallpox are reported from Newton, and the county board of health has closed two streets and quarantined the portions of the town where the disease exists.——Smallpox has also been reported to the state medical inspector, Dr. Michael W. Raub, Lancaster, from Columbus, Creswell and near Mountville.

Diphtheria and Antitoxin.—Reports of the antitoxin division of the State Department of Health show that the death rate of diphtheria for all cases treated with antitoxin was 3 per cent. No deaths were reported where the instructions of the commissioner as to the liberal use of antitoxin twenty-four hours after the beginning of the attack were followed.

Physicians Ill.—Dr. George Noonan, Meadville, is seriously ill in St. John's Hospital, Pittsburg.——Dr. John J. Cannan, Bradford, who has been seriously ill, is convalescent.——Dr. William H. Lauman, Mount Holly, who has been critically ill with heart disease, is improving.——Dr. Horace B. Heysham, Norristown, who has been confined to his house for several months, has recovered sufficiently to go out.

Typhoid Fever.—Typhoid fever is reported to be increasing in Allegheny and the health officer is devoting his entire energy to reducing spread of the disease to the minimum.——During the first six months of the year, 2,491 cases of typhoid fever in Pittsburg were reported and during the corresponding period of last year, 856 cases. The greatest increase occurred during the first four months of the year. The water supply of Pittsburg and Allegheny is said to be contaminated by the sewage and the surface waters

Personal.—Dr. Charles A. O'Reilly has resumed practice at Strafford.——Dr. Wiliam R. Thompson has been elected president, Dr. R. S. Stewart vice-president, Dr. Thomas F. Cashman secretary, and Dr. David H. Lewis treasurer of the City Hospital Association of Washington.——Dr. Horace E. Westhaeffer, medical examiner for the Pennsylvania system at Williamsport, has been put in charge of the Monongahela division, with headquarters at Monongahela City.——Dr. Lee B. Woodcock, Scranton, has sailed for Europe.

To Fight Tuberculosis.—At a meeting held in Wilkesbarre, July 6, the Wyoming Valley Association for the Prevention and Treatment of Tuberculosis was organized. Dr. Charles H. Miner, Wilkesbarre, was elected secretary; and Drs. Frederick C. Johnson, and Walter S. Stewart, Wilkesbarre, and Dr. Charles P. Knapp, Wyoming, were elected the medical members of the board of directors. It has been decided to open a dispensary in Wilkesbarre and to give especial attention to the education of the people in regard to tuberculosis.

Philadelphia.

Upper Air.—Drs. Samuel J. Ottinger and T. Chalmers Fulton made a balloon ascent July 22 to make experiments of the effect of high altitudes on the human body.

Money for Hospital.—Under the provision of the will of Dr. Ferguson, who died July 10, a large proportion of his estate, which amounts to more than a million dollars, will eventually go to the Presbyterian Hospital.

Personal.—Dr. J. William White, securely convalescent from his recent operation, sailed for Europe, August 1.——Dr. Richard S. Davis is seriously ill with appendicitis.——Dr. Richard P. Wilkinson narrowly escaped drowning at Atlantic City.——Dr. and Mrs. John S. Wentz sailed for Europe August 9.——Dr. William C. Drein was successfully operated on for appendicitis August 8.——Dr. William W. Keen had the honorary degree of LL.D. conferred on him by the Greifswald University, Prussia, at its 450th anniversary, August 7.

Health Report.—The total number of deaths reported for last week aggregated 519. This shows an increase over the number reported the previous week and a decrease of 71 as compared with the corresponding period of last year. The principal causes of death were: Typhoid fever, 16; diphtheria, 4; consumption, 58; cancer, 16; heart disease, 22; acute respiratory disease, 35; pertussis, 8; apoplexy, 15; enteritis, 108; hepatic cirrhosis, 7; Bright's disease, 38; accidents, 10; suicide, 2; sunstroke and heat, 13; appendicitis, 4; and marasmus, 14. There were 154 cases of contagious disease reported, with 24 deaths, as compared with 165 cases and 16 deaths reported in the previous week.

CALIFORNIA RELIEF FUND.

The following contributions are acknowledged:

INDIVIDUAL CONTRIBUTION.

Gass, H. W., Sunbury, Pa.	$ 2.00

SOCIETY CONTRIBUTIONS.

Bradford County (Pa.) Medical Society	25.00
Columbus Academy of Medicine, Columbus, Ohio	11.00
Matson, G. M. ....$1.00 Rankin, T. W. $10.00	
Cumberland County (N. C.) Medical Society	5.00
Fayette County (Ky.) Medical Society	102.00
New Mexico Medical Society	100.00
Shamokin County (Pa.) Medical Society	10.00
Total	$ 255.00
Previously acknowledged	$13,648.19
Grand total	$13,903.19

GENERAL.

Health Conditions on the Isthmus.—Acting Assistant Surgeon Mohr reports that there has been an unprecedentedly heavy and continuous rainfall during the past month and that in consequence malarial fever is on the increase. Cases of this disease occurring on vessels in port are kept under close observation.

Tri-State Meeting.—The Tri-State Medical Association held its thirty-third annual meeting at Put-in-Bay, Ohio, July 31 and August 1 and 2. Dr. Charles D. Aaron, Detroit, Mich., was elected president; Dr. Theodore F. Wood, Angola, Ind., vice-president; Dr. William F. Shumaker, Butler, Ind., secretary, and Dr. Joseph A. Weitz, Montpelier, Ohio, treasurer.

Obstetricians to Meet.—The nineteenth annual meeting of the American Society of Obstetricians and Gynecologists will be held at Cincinnati September 20-22. The subjects announced in the preliminary program include Porro-Cesarean section, fixation of the kidney, intestinal obstruction, diffuse peritonitis, abuse of purgatives in surgical patients, vaginal celiotomy, reflex dyspepsias, peritoneal adhesions and kidney suspension. Dr. John Young Brown, St. Louis, is president, and Dr. William Warren Potter, Buffalo, secretary. Dr. C. L. Bonifield, 432 West Fourth street, Cincinnati, is chairman of the committee on arrangements and will furnish further information to those who write for it.

Harvey Society Lectures.—The second annual course of lectures, to be given in New York City under the auspices of the Harvey Society, will be opened Oct. 20, 1906, by Prof. A. E. Wright, of London. Ten lectures are to be given during the year, as follows:

October 20	Prof. A. E. Wright.
November 3	Prof. C. A. Herter.
November 17	Professor W. T. Porter.
December 1	Prof. J. G. Adami.
December 15	Prof. George Huntington.
January 12	Prof. F. G. Benedict.
January 26	Prof. E. B. Wilson.
February 9	Prof. S. J. Meltzer.
February 23	Prof. W. T. Councilman.
March 9	Prof. Friedrich Müller.

The officers of the society for the coming year are: Graham Lusk, president; Simon Flexner, vice-president; F. S. Lee, treasurer; George B. Wallace, secretary; and C. A. Herter, S. J. Meltzer and James Ewing, council.

Cholera in the Philippines.—Chief Quarantine Officer Heiser reports from Manila that after cholera had disappeared, with the exception of a few isolated cases, it suddenly made its appearance in a number of widely separated towns. At Tanay, one of the small towns situated in the province of Rizal, bordering on Laguna de Bay (Lake of Bay), the disease has assumed epidemic proportions, nearly 100 cases being reported within ten days. The disease also appeared at Camp Stotsenberg, Angeles, Guagua, and San Luis, in the province of Pampanga; at Malolos, in Bulacan Province; at Pila, Siniloan, and Santa Cruz, Laguna Province; and at Pasig and Cainta, province of Rizal. One noteworthy feature of the outbreak is that the appearance of the disease in the places mentioned above, occurred almost on the same day. So far, no satisfactory explanation has been offered for the outbreak. Those who believe in the theory of Pettenkofer, namely, that outbreaks of cholera depend on certain conditions of the soil, which occur when certain meteorologic conditions are present, are proclaiming that this is a vindication of his theory. Dr. Heiser also reports that another case of cholera was detected at Mariveles, June 22, 1906, on the steamship *Bun Yek*, at the outgoing quarantine inspection, which is made of vessels bound for ports in the Philippine Islands. The patient was promptly removed to the station hospital. The vessel and the effects of the crew and passengers were thoroughly disinfected. So far there has been no further outbreak.

Fiftieth Anniversary of the Coal-Tar Industry.—The year 1906 marks the fiftieth anniversary of the discovery by William Henry Perkin of the dyestuff mauve by which the foundation was laid for the coal-tar industry, and which at the same time stimulated the study of chemistry. An interesting ceremony was held in London July 26, when scientists gathered from near and far to congratulate the discoverer. He was only 19 at the time of the discovery, and he was conducting research for an entirely different purpose, his aim being to discover some means for the synthetic production of quinin. During his attempts to oxidize anilin with chromic acid a brilliant purple dye was produced, to which he gave the name of mauveine, mauve being the exact shade of purple produced. Our British exchanges in commenting on the jubilee remark that the importance of the discovery was not recognized in Great Britain at first, and the coal-tar industry and the application of the anilin dyes in histology and morphology are largely the work of other lands. To commemorate the event a movement was originated in England by the appointment of a committee, which is now supported by similar organizations in Germany, France and Switzerland, and an appeal has been made for subscriptions to carry out the following objects: 1. Presentation to Dr. Perkin for his life time of an oil portrait of himself, executed by an eminent artist, the portrait to become the property of the nation at his death. 2. The execution of a marble bust of Dr. Perkin, to be placed in the rooms of the Chemical Society. 3. The establishment of a "Perkin Research Fund" for the promotion of chemical research, to be administered through the Chemical Society. The committee organized in the United States for this purpose believes that Americans in general are not duly impressed with the achievements of chemistry, and therefore do not appreciate the importance of Perkin's discovery, and that in consequence they will not contribute liberally to the fund for the memorial. In order, therefore, to make the occasion a public tribute to Dr. Perkin for the immense services he has rendered to chemical industry and science it has been decided to hold a separate American celebration at a date in the late fall in which the whole American nation may join. With this object in view the committee submitted the following program: 1. To invite Dr. Perkin to attend the American celebration. 2. To present him with some personal token. 3. To found a medal, to be awarded annually to an American chemist for distinguished work in applied chemistry. 4. The establishment of the nucleus of a fund for the foundation, at the Chemists' Club, in New York City, of a reference and circulating library, covering the entire field of theoretical and applied chemistry, to be in charge of a salaried librarian, and to contain duplicate sets of books, one to be used for circulation among American chemists. It is estimated that $5,000 will be amply sufficient to cover the expenses of the personal token and the Perkin medal, while the sum of at least $50,000 will be necessary to place the library on a permanent basis.

The Leper Case.—In the *West Virginia Medical Journal* for August appears a letter from Dr. J. C. Irons, of Elkins, West Virginia, in regard to the case of leprosy to which we have referred in our news columns, and on which last week we commented editorially. The letter shows that while the man was in no sense a citizens of West Virgina, he was well cared for while he was there. The following is Dr. Irons' letter:

In view of the notoriety of the case of leprosy which has caused so much newspaper comment and such embarrassment to the several railroads, we deem it of sufficient interest to the profession to give a true history of the case of Marron John Rashid, aged 21, a native of the town of Surba, Sidon County, State of Beireuth, Syria, who came to America about four years ago. He first engaged in peddling in the state of Maine, after which he was employed in a cotton factory in Waterville, Maine, where he remained about one year. He was married a few years before leaving his native country and left his wife in Syria, she following to America about eighteen months later, joining him at Waterville. A few months after she came, and about two years after Rashid's arrival, he developed some sores about his face which became so serious that he was compelled to quit his work in the factory. Soon after this he went to Uniontown, Pa., where he remained a few months, living among his Syrian friends, while his wife peddled from place to place. They then came to Enterprise, W. Va., and remained a short time. Then they came to Clarksburg, W. Va., and Rashid was in one of the hospitals there about three weeks. From there they went to Richwood, W. Va., and spent some time there. Thence they came to Philippi and after remaining there for a time they reached Elkins on June 5. About the 15th Dr. W. W. Golden saw Rashid, he having expressed a desire to enter Davis Memorial Hospital, but on examination Dr. Golden, surgeon in charge of the hospital, diagnosed the case as leprosy and declined to receive him. I saw him June 23 and was puzzled to diagnose the case, never having seen a leper, but after consulting with Dr. Golden and reading up the history of leprosy, I was convinced that this man has a true case of tubercular leprosy.

As the meeting of our local medical society (Barbour-Randolph-Tucker) was to meet just at this time, we decided to say nothing of the case publicly and to present it before the society, which was done July 28. At the meeting the fifteen physicians present concurred in the diagnosis, and the patient was turned over to the board of health, which at once took charge of him, preparing a tent for him, where he remained till the 18th, when he took "French leave."

During the discussion of this case at the society the fact that the disease was only very mildly contagious was emphasized, and as a consequence when the news that a leper was in town became known, but little excitement was manifested, thereby demonstrating the practical utility of a county medical society in moulding public opinion. It may be interesting to know that our board of health and the city authorities did all they could to make the patient comfortable. After furnishing him with tent and cot with sufficient clothing, they allowed the Syrian friends one dollar per day to supply him with provisions, etc. Besides, many friends visited him from time to time and gave him many delicacies to make his isolation as agreeable as possible.

During this period efforts were in progress by the local board of health, through the state and national authorities, to make a permanent disposition of the patient. Since his leaving Elkins the public has been informed of his every movement.

As a helpful factor in the diagnosis of this case the leper admitted that there were two similar cases in native village at the time of his departure from it. Thus far neither his wife nor his friends, so far as we can learn, have leprosy, and the fact that he had been in this country two years before its appearance demonstrates the long incubation period of leprosy. Though his wife was with him constantly through the two years of the disease she shows no sign of infection. The rarity of this disease in this country no doubt accounts for the failure of an earlier diagnosis, notwithstanding the fact that this man was under the care of several physicians in different states. In addition to the leprosy, Rashid is also suffering from an advanced valvular lesion of the heart.

The latest advice is that the United States Public Health and Marine-Hospital surgeon who was sent to examine the leper now occupying a tent on a hillside in Randolph County, West Virginia, has stated that he can not be deported. The public of the district where the leper is now sojourning was panic stricken, and he has been much neglected, but the county has now taken him in charge, and will, it is said, build a house and provide for him.

FOREIGN.

Alvarenga Prize of Berlin Hufeland Society.—The prize this year was awarded to C. Hart, assistant at the Friedrichshain Pathologic Institute, with high commendation. The topic appointed was "Importance of Stenosis of the Upper Opening of the Thorax for the Development of Apical Tuberculosis."

Postponement of Fifth International Congress of Gynecology.—This congress was to have been held in 1905, but was postponed to 1906, and another postponement has been announced. The congress was to convene at St. Petersburg this fall, but on the wish of many members and with the approval of the committee of organization the postponement was agreed on. The date now appointed is September 11 to 18, 1907.

Clinic for Occupation Affections.—As a result of the recent International Congress for Professional Diseases, the city of Milan has appropriated funds to establish a clinic for occupation affections and professional ailments. Professor Devoto, of Pavia, is to have charge of the clinic. A private subscription of about $80,000 has been received and the city agrees to supply $1,200 annually toward its support. It will have a capacity

of sixty beds and will be the first special establishment of the kind in Europe or elsewhere. The congress was held in Milan this spring.

Second Course in Social Medicine.—The local branch at Berlin of the *Leipziger Verband* recently organized a course of post-graduate lectures on some of the social aspects of the practice of medicine, as mentioned in detail in these columns at the time. The course met with unexpected appreciation and success and a second course has been organized. The subjects to be discussed are those connected with the diagnosis, prognosis, treatment and certificates of accidents in relation to accident insurance. Hoffa will discuss "Treatment of Injuries from Accidents and Their Consequences by the Surgeon," and Schuster the same "by the Neurologist."

Koch in Africa.—The *Wien. klin.-therap. Wochschr.* for July 15 contains a brief account of the Koch scientific expedition which is at present at Muanza, near the Victoria Nyanza. As there are only six Europeans living at this "military station," the Koch party will have to live in tents and huts set up by themselves. This region has suffered frightfully recently from sleeping sickness, fully 1,500 natives having died. The party intends to visit later the islands in the Victoria Nyanza, which have been entirely depopulated by the scourge. When Meixner joins the party, as soon expected, there will be six physicians. The rains have been almost continuous of late, they write.

International Congress of Life Insurance Examiners.—We have announced the International Congress of Life Insurance Examiners in Berlin, September 11 to 15. The minister of state, Dr. Studt, is the honorary president of the congress, and Kraus, Florschütz and Unverricht are in charge and will preside. The principal topics to be discussed are pulmonary tuberculosis, syphilis and obesity in respect to life insurance. Accident insurance will have a place on the program for the first time at such an international gathering. The special subjects are the aggravation of internal diseases by traumatism, with special regard to functional neuroses and organic affections of brain and spinal cord. The subscription entitling to the transactions is covered by a fee of 16 marks, about $4. Further details can be obtained from Dr. Manes, Spichernstrasse 22, Berlin.

Lunacy Reform in Victoria, Australia.—As a result of the report of the Inspector-General of the Insane in Victoria, the government of the province has authorized several important works to be carried out. The most important of these is the approval of the erection of a hospital for acute mental cases for the metropolitan district. This hospital is to contain 125 beds and will cost about $150,000. According to the *Australasian Medical Gazette* only cases in which there is reasonable hope for recovery will be admitted. All the existing county institutions are to be renovated and a sum of $40,000 is to be expended in providing reception houses at Ballarat, Warnambool, and Sale, as well as improving the one at Bendigo. Another reform promised is an alteration in the existing arrangements for nursing. At present there is a large staff of untrained attendants temporarily employed in the various asylums; this is to be replaced by a permanent staff of fully-trained attendants who are to enter the service as probationers.

Jubilee of the Greifswald University.—Greifswald is the oldest university in Prussia and is now celebrating, with great ceremony, the 450th anniversary of its foundation. The dean compiled a *Festschrift* on the occasion, which is published as a special souvenir number of the *Deutsche med. Wochenschrift*, August 2. It contains an historical sketch of the university and twenty-one articles from the various clinics and institutes. Many of the writers are of world-wide fame. The list includes Grawitz, Loeffler, Uhlenhuth of the biologic blood test, Sauerbruch, A. Martin, Jung and Friedrich. The medical department was in the hands of a single professor until the close of the eighteenth century, and several times since it lapsed into the same condition again, until 1824, when a medical faculty may be said to have sprouted. Berndt, Schultze (father of the Bonn anatomist, Max, and the Jena gynecologist, B. S. Schultze), H. Ziemssen and Adolph Bardeleben were the special luminaries in the history of the Greifswald medical school in its early days.

Meat Inspection in Queensland.—According to the *Australasian Medical Gazette*, the following is the method of inspection of meat in Queensland: All meat for home consumption is inspected under the slaughtering act, and all export meat is inspected under the live stock and meat export act. In both cases, the meat can be traced back to the station from which it came; there is no possibility of diseased meat being consumed. Heavy penalties are provided for using meat which has been condemned. Each case of preserved meat carries a label certifying to its wholesomeness, while each carcass carries a tag. In addition to this, the inspectors see that all condemned meat is consigned to the boiling down pots. It is officially stated that there has never been an attempt to evade the provisions of the act, and that on the contrary, the companies are glad to coöperate with the government in putting a good article on the market in the full assurance that any cause for complaint would react disastrously on their business.

French Law Compelling Sunday Rest.—A bill has been before the French parliament for fifteen years and has finally been passed which imposes Sunday rest. Compulsory closing of shops on Sunday is now required, and cessation of week-day work is imperative on all employés or workmen in a manufacturing or commercial establishment or its dependencies, whatever its nature, public or private, lay or clerical, even if it has a character of professional instruction or benevolence. There are numerous exceptions provided for. Whenever it is evident that the Sunday rest for all the personnel of an establishment would be prejudicial to the public or would compromise the normal functioning of the establishment, the day of rest can be given on some other day than on the Sunday or divided among several days, or the personnel of the establishment may take turns in the Sunday rest. A special permit is necessary to have a right to these exceptional privileges of remaining open all or part of Sunday, except in the case of hospitals, dispensaries, drug stores and saloons. The *Semaine Médicale* laments this special favor granted to saloons, stating that there is one saloon in France for every fifteen adult males, and their closing on Sunday would be a national blessing.

Success of the Campaign Against Malaria in Italy.—The expensive sanitation of the malarial regions in Italy by means of drainage, etc., had comparatively little effect in reducing the amount of malaria in the regions involved. Matters have been revolutionized now by the simple quinin and screening prophylaxis, which has reduced most remarkably the malaria morbidity during the last four years, while the sale of guaranteed pure quinin by the government has brought in a revenue of 230,000 lire—that is, nearly $50,000—above expenses. The amount of quinin taken in the prophylactic doses varies in different regions from one tablet or part of one to three or four tablets. Each tablet contains 20 cg. A letter from Galli in the *Münch. med. Wochsch.* states that the government is now seriously contemplating the making of chocolate-coated tablets of quinin tannate for children. Researches undertaken for the purpose have established that the absorption and action of the tannate is on a par with those of the other salts of quinin, while it is much more palatable and will not be so disliked by children. Gaglio and Cervello have announced that the results of their experimental work have fully established the assimilation of this salt, although they have not had sufficient clinical experience to date to pronounce a final judgment. The mortality from malaria has dropped 50 per cent. and is still going down.

Fourteenth International Congress of Hygiene and Demography.—Germany is making elaborate preparations for the approaching International Congress of Hygiene and Demography which is to be held in Berlin from September 23 to 29, 1907. The chairman of the committee of organization is Professor Bumm, president of the Imperial Board of Health, and the preparatory work is so well advanced that the invitations will shortly be issued. The meetings of the congress will probably be held in the parliament buildings. The work has been divided into eight sections: Section 1, hygienic microbiology and parasitology; section 2, dietetic hygiene and hygienic physiology; section 3, hygiene of childhood and schools; section 4, professional hygiene and care of the working classes; section 5, combating infectious diseases and care of the sick; section 6a, hygiene of dwellings and communities; section 6b, hygiene of transportation; section 7, military, colonial and naval hygiene; section 8, demography. A scientific exposition is to be held in connection with the congress, in charge of Professor Rubner, privy medical councilor, Hessischestrasse 4, Berlin N. 4. The business affairs of the congress are in the hands of the secretary-general, Dr. Nietner, retired surgeon-major. The bureaux of the congress are at the address Eichhornstrasse 9, Berlin W. 9. The position and character of the men in charge of this congress guarantee its official nature and its success.

Improved Sanitation for Mecca.—According to the Constantinople correspondent of the *Lancet*, the Ottoman government is considering plans for the improvement of sanitary conditions

at Mecca. It is intended to build a hospital of 300 beds, while the existing dispensary will be supplied with the necessary drugs for gratuitous distribution. Lodging houses are also being planned for the poorer class of pilgrims who flock from every quarter of the globe to the sacred city, and who are often obliged to spend the nights under the open sky. The water reservoirs, which at present are exposed to every sort of contamination, are to be covered, and the number of street fountains is to be increased. It is reported that several other charitable and sanitary institutions are to be erected and endowed. The most important plan under consideration, the *Lancet's* correspondent states, is the proposed thorough improvement of the water canalization of Aini-Zubeid, which supplies the sacred city with drinkable water. The works are to be executed under the supervision of a special commission, presided over by the governor-general of the Hedjas Province, and will be directed by two engineers sent from Constantinople. The sultan, it is said, has offered from his private purse a large sum to defray the initial expenses, and it has been decided to open a list of subscriptions and to invite the Mussulman population to contribute, while the revenues of the ministry of the so-called Evkaf (religious institutions) will be drawn on should the expenses exceed the contributions.

Congress of Professional Medicine in Belgium.—The Medical Federation of Belgium organized a second conference to discuss matters materially affecting the profession, and it convened at Ghent, July 15. The *Gazette Méd. Belge* brings reports of the proceedings, which are said to have been unusually interesting and fruitful. Delegates from the various local branches attended in large numbers, and several resolutions were unanimously adopted on subjects in which concerted action of this kind can not fail to lead to results in time. Merveille, president of the federation, did not hesitate to maintain that "society is unjust to the medical body, that the time has come for it to cease calling incessantly on the medical profession for devoted services without ever any practical recognition of the value of its services; that the time has come to apply the pickax to all the barriers that wall in and hamper the growth and prosperity of the most benevolent of all professions." He continued: "We can face the future with confidence. Let us group ourselves more and more in the close union which our Ghent confrères have adopted as their motto, and let us press closely together around the time-honored banner of the *Fédération médicale belge*, which will lead us surely to the victory which is the reward of bravery, justice and perseverance." Among the principal subjects discussed was the hospital treatment of patients able to pay, and a resolution was adopted to the effect that pay rooms should be done away with in the public hospitals and that all patients should be treated on an equal footing.

LONDON LETTER.

(From Our Regular Correspondent.)

LONDON, July 28, 1906.

Suit for Certifying to Gonorrhea.

The annual report of the London and Counties Protection Association contains, as usual, an account of various actions taken or threatened against physicians, which as a rule the association was successful in defending. One case, which was unsuccessfully defended, is of particular interest. A physician wrote on a certificate the fact that a member of a sick club was suffering from gonorrhea and gave this certificate to the secretary of the club. The member brought an action for libel and slander. The physician pleaded that the communication was privileged, but the jury decided against him and awarded $750 damages to the plaintiff. The case shows that a physician should never give his opinion of the nature of an ailment to any one but the patient without the latter's consent in writing, or in such form as to be capable of legal proof. The solicitors of the association state, in commenting on the case, that when a physician, in the course of his duties has to fill up a club certificate, and the ailment is one the disclosure of which would constitute a libel, he ought to give the certificate to the patient (not to a third party, as in this case). Then any responsibility for disclosure to others would rest entirely with the patient.

Purity Label for Meat.

As a consequence of the Chicago packing-house scandals, Dr. Collingridge, Health Officer for the City of London, has made a report on the inspection of meat. He states that examination for the detection of disease can be properly made only at the time of slaughter and that such examination to be of value must cover the inspection of the animal while alive by a veterinary surgeon and an examination after slaughter by a recognized expert. The inspectors at the central markets are at a great disadvantage in dealing with meat, as it is brought there in the form of dressed carcasses, so that the organs are not available for the detection of disease. The obvious remedy is the compulsory use of abattoirs. Freedom from disease being ascertained, this should be guaranteed by an official label. In order to perfect the system, the requirement of a label should apply to both home and foreign meat. In the case of home-killed meat there would be no difficulty in the acceptance of the label, but in the case of foreign countries this would not be so easy. The government, he states, should immediately investigate the system adopted in other countries.

The Condition of Ireland.

The annual congress of the Royal Institute of Public Health was held recently at Cork. The president of Queen's College, Prof. Bertram Windle, delivered the presidential address, in which he gave a deplorable picture of the condition of Ireland. If there is a country in the world, he said, which should be healthy and prosperous, filled with strong men and women, lusty children, and smiling homesteads, it is Ireland. But it is far from so. While the death rate from tuberculosis is steadily declining in England and Scotland, it is as steadily increasing in Ireland. Moreover, there is an alarming increase in the number of the insane. Many attempts had been made to explain why Ireland suffers from these terrible scourges. Drink and bad housing may be factors, but they do not explain everything. Emigration year by year drains away the life-blood of the race in the shape of its youngest, most promising and most valuable members. It had been well said that what is happening in Ireland is the survival of the unfittest. Professor Windle thinks that the health authorities are not keeping up with the advances in the sciences of hygiene.

Boric Acid in Food.

The question whether or not the use of boric acid as a preservative of food has any injurious effect still provokes conflicting opinions from experts. A firm of army contractors was summoned for selling potted ham containing .74 per cent. of boric acid and colored with oxid of iron. Dr. Sykes, health officer for the borough of St. Pancras and lecturer at Guy's Hospital, said that the continuous eating of food treated with boric acid is injurious. The boric acid arrests putrefaction in meat, but the ptomains remain. It makes food less digestible. There are several safe ways of preserving—smoking, salting, drying, refrigerating and sterilizing. Dr. Wilcox of St. Mary's Hospital gave instances of two children suffering from malnutrition after living on food containing boric acid. On the other hand, Dr. Otto Hehner, a past president of the Society of Public Analysts, and Prof. Tunnicliffe, a member of the departmental committee on food preservatives, gave evidence for the defense. Dr. Hehner said that boric acid is the least objectionable form of preservatives and that a mild cured ham can not be otherwise obtained. Boric acid has been in use for fifteen years in Great Britain without any conclusive case of injury to the consumer. In cross-examination, Professor Tunnicliffe admitted that although a person in strong health might take such foods without ill effects, injury might occur in children and in weak persons. A penalty of $25 and $250 costs was imposed.

LONDON, Aug. 4, 1906.

The British Pharmaceutical Conference.

The annual meeting of the British Pharmaceutical Conference was held in Birmingham. The president, Mr. W. A. H. Naylor, London, delivered an address, in the course of which he affirmed that the medicines supplied through qualified chemists are of a quality that was unobtainable less than a quarter of a century ago, particularly preparations capable of assay by chemical process. The rubric of the conference, to which every member tacitly subscribed, namely, to maintain uncompromisingly the principle of purity in medicine, is observed more generally and intelligently now, he said, than in the past. It can not be denied that second and third quality drugs are marketable and that preparations are made from them bearing official names. But, despite all temptations to conduct their business on commercial lines, there are a large number of individuals engaged in the craft who practice high-class pharmacy and who, with praiseworthy zeal, devote their little leisure to the prosecution of pharmaceutical research.

The Dangers of Cheap Bedding.

Dr. Leo Taylor, public analyst of Hackney, in a report submitted to the health committee of the borough, has given some startling information regarding the flock used in stuffing cheap

mattresses and pillows. He made a comparison between the analysis of a sewage effluent, decided by the magistrates to be too bad to turn into a water course, and the analysis of water in which the flock had been washed. One gram of flock was found to yield 7,590,000 colonies of bacteria, while the same quantity of sewage yielded 6,400,000. The flock was made from old and filthy rags, which were too bad to be remade into cloth, collected from dust heaps. A preliminary sorting of rags into clean and dirty was performed and some underwent a certain washing, but these commanded higher prices and could not be used in the cheaper bedding. Subsequently the doctor had an opportunity of visiting a flock factory. He found that the process followed is extremely simple and devoid of sanitary precautions. Old rags of every description, but consisting largely of old clothing in the most filthy condition and stinking horribly, are received at the factory in bundles and without preliminary treatment are placed in machines which tear the cloth to pieces, rejecting the buttons and metallic substances. The shredded cloth then passes under cover to a revolving "devil," where the long teeth further break it up and where, by a current of air exhausted through a flue into a settling chamber, the dust is removed. Owing to the friction a certain amount of heat is evolved, so that in addition to being freed from dust the flock, which the material has now become, is dried and leaves the machine free from odor. This is the whole process and no attempt is made to cleanse the material beyond agitation in a current of air. Although this removes the foul odor, it can not remove the filth with which much of the cloth is impregnated and which only awaits favorable conditions of moisture and warmth to prove a kind of hotbed. The doctor concluded his report by stating that flock so prepared is a serious danger to public health and that steps are urgently needed to compel purification of the material either before or after preparation.

Tuberculosis in Irish Cattle.

Mr. R. T. Houston, secretary to the Armaugh Agricultural and Technical Instruction Committee, gave some remarkable evidence before the commission appointed to inquire into the working of the Irish Department of Agriculture as to the prevalence of tuberculosis in Irish cattle. He subjected over 200 cattle to the tuberculin test and found that over one-fourth were tuberculous. No wonder the death-rate in Ireland from tuberculosis is so high. Much of the meat was diseased and the milk swarmed with tubercle bacilli. He held that tuberculosis in cattle should be a notifiable disease. Every stud bull should be licensed by the department after an examination which leaves no doubt that the animal is absolutely free from disease.

A Remarkable Oversight.

At Wolverhampton the coroner remarked at an inquest: "This is the most remarkable case I have been called on to investigate in an experience of fourteen years." The deceased was a cigar merchant, who six or seven weeks before death was found one morning by his housekeeper "all smothered in blood," which he explained by saying he had had a fall. A physician was called and next day the man had six fits. Later he went to the Wolverhampton Eye Infirmary because he had lost the sight of one eye. He was afterward transferred to the general hospital and seemed practically cured. He was treated as an out-patient until his death. The revelations of the necropsy were startling. There were a small scar in the right temple, a bullet in two fragments, a fracture of the base of the skull and an abscess of the brain. One fragment of the bullet had lodged in the brain, where it had produced the abscess. The other had destroyed the optic nerve. But how came the bullet in the brain? It was shown that the deceased was a heavy drinker and that on the morning when he was found covered with blood a revolver had been taken out of the bed. The jury returned a verdict that he had committed suicide while temporarily insane. The scar on the temple was about half an inch in diameter, white "with a black mark." It was partly hidden by the hair and might readily escape observation. The extraordinary fact was that a man suffering from extensive traumatic cerebral injuries was under the care of several physicians and treated in two hospitals without any suspicion of the real nature of the case, which must rank among the curiosities of medical literature.

Workman's Claim for Compensation for "Dropped" Kidney.

The workman's compensation act, which amply insures compensation for injuries received in his occupation has greatly increased the number of actions for damages. A novel claim for "dropped" kidney has just failed. The judge dismissed it on the ground that, assuming the plaintiff was suffering from "dropped" kidney, in his opinion it was not caused or aggravated by the alleged accidental strain.

A New Industrial Danger.

Some months ago a new kind of wood was introduced to replace the boxwood shuttles used in Lancashire workshops. After a few days the workmen who handled the shuttles began to show signs of illness and some of them died. An investigation was undertaken by Professor Gibson, dean of the faculty of science in the University of Liverpool. He identified the wood as West African satinwood and found that it contained a considerable quantity of alkaloid, which, being soluble in salt solutions, would be readily absorbed by the perspiring skin. The alkaloid proved to be a powerful cardiac poison, causing rapid death when injected into the animals. The symptoms of poisoning in man were headache, sleepiness, coryza, chronic sneezing, giddiness, faintness and dyspnea.

The Medical Inspection of School Children.

A deputation representing the British Medical Association, supported by representatives of the Manchester and Salford Sanitary Association, of the Medical Committee on the Teaching of Hygiene and Temperance, and Incorporated Society of Medical Officers of Health, waited on Mr. Birrell, president of the board of education, with reference to clause 35 of the education bill, which gives the local education authority "power to make such arrangements as may be sanctioned by the board of education for attending to the health and physical condition of the children educated in the public elementary schools." Sir Victor Horsley, speaking on behalf of the British Medical Association, said that he is convinced that the control of the matter should be entirely under the education department and not left to the local authorities to act as they thought fit. The department should take as an example the action of the local government board in preventing the spread of zymotic diseases. They asked for a medical official, with perhaps one or two assistants, who should correlate the reports that came into the education department from the local authorities and also correlate the opinions derived from other countries. Mr. Birrel made a sympathetic reply and informed the deputation that it is proposed to add another medical officer to the staff of the central education department. He agreed that proper inspection and proper record of the facts would be of great utility, but, remembering that there are 5,000,000 children in some 21,000 schools, he does not think that £500,000 a year (a sum mentioned by one of the deputation) would even touch the expense of properly inspecting children on really scientific principles. He does not believe that compulsion would effect the object that the deputation had in view; they must be content to strengthen the medical side of the board and stimulate the local authorities by every feasible method.

The London School of Clinical Medicine.

The London School of Clinical Medicine, the foundation of which has been described in THE JOURNAL, has completed its first term of work. It was attended by forty-two practitioners. These comprised men engaged in general practice in the provinces and physicians in the army, navy, Indian and other public services, and some from the British colonies and America. The amount of clinical material available has been abundant and there has been a large number of cases of exceptional interest.

VIENNA LETTER.

(From our Regular Correspondent.)

VIENNA, July 27, 1906.

Regulations Governing Coloring of Foods and Breadmaking.

The ministry of the interior, as a central board of health, has recently turned its attention to the colors added to various articles of food and has adopted regulations in conformity with the present status of chemistry. In the latter part of the last century all the coal-tar dyes were pronounced dangerous to health and their use was forbidden for the above-mentioned purposes. Since the progress of chemistry has enabled absolutely pure products to be placed on the market, a change of this obsolete ordinance was inevitable. The substances prohibited were: All dyes containing arsenic, antimony, mercury, zinc, picric acid and its compounds and lead and its compounds. These will all remain on the list; other colors and dyes may be used if they are harmless and if they are not designed to conceal the bad quality of the goods. The dyeing of meat and sausages is strictly forbidden; coffee may be dyed. Further-

more, the new regulations name numerous substances which may be used in the production of cosmetic preparations and toys, while the colors of furniture and wall coverings must be absolutely free from arsenic and copper salts. Several cases of lead poisoning have lately come to the notice of the medical registrar which were traced to dyed stockings and other underwear. The other regulation deals with the means of preventing the spread of actinomycosis. Each bakery house is required to post in some prominent place a placard in which the symptoms of the disease are enumerated and a means of avoiding infection made clear. The present mode of baking bread necessitates twice moistening the dough; for this purpose short bundles of dried straw are used, and by means of this straw the parasite can be conveyed to the bread; after describing the mode of infection and its consequences the placard continues by requiring all such brushes to be disinfected by boiling them in water, drying them well and shaking them well before using.

Vacation Courses.

The time of three months between the summer and winter semesters has been used by the medical faculty to establish a series of classes and courses for such physicians as are unable to attend the ordinary postgraduate courses during the year. Each class is expected to consist of at least four physicians, while the number of students will be limited so as to enable thorough and efficient practical work. The duration of each course will not exceed from four to six weeks. The fees vary from $10 to $25, and the subjects include instruction in the latest physical methods of diagnosis, surgery and microscope work. Apart from these classes, special courses will be delivered for the members of the Vienna Medical Association at a nominal fee of $1, which sum will go to the funds of the Widows and Orphans' Aid Society of the association. If these latter classes, lasting from eight to fourteen days, find approval it is planned to throw them open to non-members, but at a higher fee. All these classes will be conducted by the professors and their assistants, and they afford a rare opportunity to keep posted in the progress of medicine, which is only too often so difficult when one is occupied in general practice.

The Conflict Between Dental Surgeons and Dentists.

For several years a conflict has been raging between the dental surgeons and dentists of the empire which needs some explanation. The dental surgeons are required to pass the whole curriculum of the doctor; in fact, they must obtain their degree of M.D. before they are entitled to practice. The dentists, on the other hand, generally have not had medical education, but are more or less technical assistants to the dental surgeon, making for him the artificial parts, such as crowns, bridges, etc. The purely surgical work remains entirely in the hands of the physician. Of late the technical assistants have endeavored to turn legislation in such a way as to prevent the dental surgeon from doing any work except the purely medical and surgical, leaving the artificial teeth and the more technical parts for the "assistants." The surgeons naturally resented this and tried in their turn to prevent the technical assistants from practicing independently, as the mouth is an important organ, in which danger may result from non-medical procedures. The conflict has been the subject of several bills in parliament, without any definite understanding being arrived at. The parliamentary conditions of the last years have not been very favorable to medical reforms, and national differences have occupied all its time. But a short time ago the government laid before the house of representatives a bill, in which a sort of compromise was effected between the two views. While the dental surgeons will be entitled not only to all medical but also to all technical operations in the mouths of the patients, the technical assistants will be allowed to perform certain small operations, such as the polishing and shortening of teeth for the purpose of fitting in of technical appliances, the straightening of irregular dental arches by means of India rubber or metal bands and similar minor, not surgical, contrivances.

Limitation of Experiments in Hospitals on Patients.

The directors of the principal hospitals have received an intimation from the government to closely inspect all experiments made in their respective hospitals on human beings. The authorities had been informed that in many wards such experiments had been going on, in which harm had resulted to the patients. Therefore all doctors practicing in the hospitals will be held responsible for such experiments. Exact minutes of the proceedings must in future be furnished, if required, together with the names and the object of the experiment. The chief of the ward has to be present at such experiments, and under no circumstances must any harmful proceeding be encouraged. The main object of the hospital authorities must be the desire to cure the patient as quickly and as permanently as possible. Only if a new method has to be tried after having proved harmless or useful in animals, it may be tried on the patient, if he gives his written consent. The main feature of this intimation is solicitude for the patients, but a secret anti-medical trend can not be overlooked. If carried out too literally this new regulation may prove a serious handicap to medical research in the wards.

Four Well-Known Professors Reach the Age Limit.

The system of age limit which is in force at present at the Vienna University requires all professors to retire at the age of 70 years. It was introduced some seventy years ago in order to make room for the younger scientists. Although 70 years is a good old age in Europe, especially for the hard-toiling medical men, several physicians have found means not only to attain that age, but to attain it in first-class condition. The names of those who, by the inexorable law, will be lost from official teaching are: Professor Benedikt, the well-known neurologist, whose "Comparative Anatomy of the Mammalian Brain" proved that there is no qualitative difference between human and animal brain matter. Professor Winternitz, the next one to resign his chair, is the chief propagator of hydrotherapy in Europe. Professor Stoffella is also regarded as an authority on internal diseases. His name came to the front when Koch's tuberculin appeared in the medical world. Professor Stoffella then showed, in a series of indisputable experiments, that the new preparation did not possess curative power strong enough to justify its general application. Perhaps the best known man about to retire is Professor Politzer, the famous otologist. For more than thirty years he has been the director of the ear clinic at the Vienna General Hospital. His name is well known in American medical circles by his excellent manual and atlas of the ear, and his courses on otology, delivered in English, are still crowded by American surgeons. All these men are entitled to perform their duties for another year, called the "honorary year," after which they must definitely leave the clinics. It is believed that all, without exception, will make use of this opportunity.

A Heroic Surgeon.

The fact that a clinical teacher of surgery diagnosed an acute attack of appendicitis on himself and operated on patients waiting for him just before lying down on the same table aroused great interest in our city. Professor Eiselberg, whose name was mentioned a short time ago in regard to certain official honors paid to him, a few days ago was attacked by the "modern" disease. Without mentioning it to any one, he went, in spite of pain and suffering, to the clinic where three urgent cases were waiting to be operated on by his skillful hand. After finishing the operations, which required something upward of three hours, he ordered the operating room to be prepared for another patient, and while this was being done he asked his own assistants to examine him. They concurred in his diagnosis and operated immediately on their chief and teacher.

Diphtheria Mortality in Vienna Hospitals.

In all the Vienna hospitals strict records are kept of diphtheria, and the patients seeking help are classified in the following manner: (1) Patients with sore throat and small patches on the tonsils and vulva; (2) complications with nose and throat diphtheria; (3) grave cases with laryngeal and descending croup; (4) adult patients, coming under (1), (2) or (3), respectively. The mortality has been reduced constantly from about 40 per cent. before 1895 (the year when the serum treatment was begun) to 30 per cent., 27 per cent., 15 per cent., 12 per cent., 10 per cent., 11 per cent., 9 per cent., 5 per cent., 5.3 per cent., 3.5 per cent. and 3.3 per cent. of those treated with the serum. It has been found that if the injections are given within the first twenty-four hours the disease may be practically checked. Only patients coming under observation after twenty-four hours are endangered. Intubation is seldom practiced here, as there is rarely a necessity for it. As regards adult diphtheria patients, the results from serum treatment are perhaps better still. Only the after-effects are more marked in the grown-up patients, perhaps due to the larger doses of serum injected (†). These after-effects have, curiously enough, in some cases yielded to a repeated dose of the serum, which would indicate that they were of the nature of true diphtheritic lesions. Especially in paresis of the facial muscles or in paralysis of the motor nerves of the legs

good results have been obtained. The doses used with us are 500 to 2,000 units for infants and 1,000 to 3,000 for adults. The serum is tried on rabbits and horses before it is placed on the market. Repeated attacks in the same patient have been noted in several cases. In one lad there was fourfold recurrence. This was the largest number of recurrences noted. The shortest interval before recurrence after dismissal was seventeen days.

Vaccination Under Red Light.

By order of the board of health a number of babies will, during the next vaccination period, be vaccinated "under red light," according to the views of Dr. Goldmann, who has systematically worked out the method and whose results are very encouraging, as mentioned previously in THE JOURNAL. The vaccination office is furnished with glass windows of a dark-red hue, like those for a photographer's dark chamber, and the small aseptic bandages will also be dyed red with fuchsin. The mothers will be cautioned against undoing the bandages, and to insure absolute absence of any other light than red falling on the wound a red sleeve will be provided for the vaccinated arm. It is planned to compare the results obtained thus with those of the ordinary method. Dr. Goldmann claims for his method the advantage of freedom from unpleasant swellings, the absence of fever, very flat, not disfiguring scars and a milder and shorter course of the infection.

Correspondence

Disinfection with Formaldehyd.

SPRINGFIELD, Aug. 13, 1906.

To the Editor:—In THE JOURNAL, July 28, page 288, under the above caption, Dr. Henry Albert refers to an article appearing in THE JOURNAL, July 14, page 139, concerning experiments made by the Illinois Board of Health. Dr. Albert says of the potassium permanganate method of liberating gas: "It is impossible to evaporate a pint of the 40 per cent. solution of formaldehyd with 3½ oz. of potassium permanganate. To do this it will require from 6 to 6½ oz., and with the use of any less the disinfection, I am sure, will not be satisfactory."

I have not found this to be the case. In many experiments conducted by the Illinois State Board of Health during the past year with this method of disinfection it has been found that while 3½ oz. of the permanganate would not fully evaporate 16 oz. of the 40 per cent. solution of formaldehyd, a satisfactory disinfection could be obtained when these amounts were employed for every 1,000 cubic feet of room space.

There is no doubt, however, that almost complete evaporation can be obtained with the quantities recommended by Dr. Albert, namely, from 8½ to 20 oz., or practically 7 oz. of the permanganate to a pint of the formaldehyd solution, and doubtless it would be better to use these quantities.

The apparatus employed in the experiments and in the practical disinfection work of the Illinois State Board of Health is the tin, asbestos-covered vessel, recommended by the Maine State Board of Health. In this connection, I desire to say that I am unable to find any advantage in heating the vessel in which the disinfecting agents are placed if the vessel used be covered with asbestos or otherwise prepared for the retention of the heat generated by the agents in combination.

I fully agree with Dr. Albert that the potassium permanganate method of liberating formaldehyd gas is the best method now available. In fact, it is the only method of aërial disinfection now recommended to health authorities and physicians by the Illinois State Board of Health.

JAMES A. EGAN,
Secretary, Illinois State Board of Health.

Hay-Fever Treatment by Dunbar's Remedies (Pollantin).

BUFFALO, N. Y., Aug. 6, 1906.

To the Editor:—In regard to Dr. Ingals' letter in THE JOURNAL, August 4: I used pollantin to some extent last year, with very satisfactory results. In every case the symptoms were relieved and could be kept away by repeated insufflation. One patient who had a severe type of hay fever, involving eyes, nose, throat and bronchi, wrote me from out of town that the drug was no good, his cure only lasted while he was using the powder. All that can be claimed for the antitoxin is amelioration, which is a great deal, and will enable a man to stay at home while using the powder.

GEORGE F. COTT.

ATLANTA, GA., Aug. 5. 1906.

To the Editor:—I note with interest the letter from Dr. Ingals in THE JOURNAL, August 4, in reference to the results obtained from the use of pollantin in hay-fever cases. Hay fever seems to be just as frequent in the south as it does in other portions of our country, and I doubt not that it is dependent on the same line of causes. I have used pollantin now for two seasons in a limited number of cases, but must say that I have experienced no decided results one way or the other. I have heard of one or two hay-fever sufferers in our city who have used the remedy with good results, but this I have not been able to verify personally. One or two of my patients thought they at first received some benefit, but later said that it did no more good than other remedies experimented with. Dr. Fitzgerald of Hartford, Conn., claims to cure his hay-fever patients, and so stated at the meeting of the American Medical Association at Atlantic City in 1904, by simply forcing patients to become absolute nose breathers. After a thorough trial of this method, with the hearty coöperation of my patients, I have not been able to secure the results claimed by Dr. Fitzgerald, but I am still waiting for "the light which will lead us out of the darkness and gloom."

DUNBAR ROY, M.D.

DENVER, Aug. 8, 1906.

To the Editor:—Dr. Ingals' communication in THE JOURNAL, August 4, is very timely, and it is refreshing to read an apparently honest report, even though relating unsuccessful results.

Being a hay-fever subject myself, I hailed with delight Professor Dunbar's remedy, especially after it was endorsed by several of our leading American rhinologists. My first experience, about two years ago, was a dismal failure, and, although I persisted in its use, both for myself and for my patients, I was finally obliged to acknowledge its uselessness. I could not, however, dismiss it entirely, but concluded to investigate for myself at headquarters. With this end in view I visited Hamburg during the month of May, 1905, at which time it was my privilege to witness at Professor Dunbar's hands conclusive experiments. These were the more convincing because of the subject experimented on—myself. (Experience reported in *Colorado Medicine*, April, 1906).

Professor Dunbar convinced me that not only had we been using unsuitable antitoxin, but that our dosage and our method of application were not accurate. On my return from abroad it was late in the hay-fever season and the results then obtained, while encouraging, could not be definitely attributed to the pollantin because of the natural disposition for the disappearance of hay fever without treatment at that time of the year.

I was impressed with several important details in the application of this remedy.

First, the antitoxin applicable to spring cases should not be used in the treatment of autumnal cases.

Second, the value of pollantin is increased if it can be used as a prophylactic for several weeks prior to the expected attack.

Third, the dosage must be accurate, governed according to the effect on each individual case and the amount and character of the exposure.

Fourth, it must be accurately applied, and if it is impossible to use the powder as a snuff after the manner of snuff-takers, it should be insufflated by a proper powder blower, or its use preceded by adrenalin.

Bearing these thoughts in mind I began the use of pollantin this year and have at the present time fifteen patients under my care. In not less than twelve has the result been more

than gratifying, and although I began its use with the same feeling of skepticism that my past experience had warranted, I am compelled to admit that the results to date have not only been encouraging, but in some instances remarkable. It is true that the season is still young, and I may have occasion to alter my views, but this year's experience up to the present writing is extremely satisfactory. In my own case it has been possible for me to continue my daily routine, even indulging in long automobile rides into the country and in other outings with little more discomfort than during other seasons. It is necessary to use the remedy, not only when the slightest irritation in the eyes or nose presents itself, but if possible to anticipate these symptoms by using it before exposure.

Pollantin can not be said to be a cure for hay fever, except in the sense that it is an antidote to the pollen toxins, which antidote must be applied in sufficient quantities, and sufficiently often to overcome the repeated exposures to the toxins.

Concerning the editor's note as to the proprietary nature of the remedy, it is unfortunate that this is true. Professor Dunbar himself deplores the necessity for this, but in a personal communication to me stated that without some such safeguard, remedies purporting to have the same virtues would be, and in fact had been, placed on the market to the detriment of a valuable agent and his own reputation.

ROBERT LÆVY, M.D.

FALL RIVER, MASS., Aug. 8, 1906.

To the Editor:—I have read with interest the letter from Dr. Ingals in THE JOURNAL, Aug. 4, 1906, touching the question of the treatment of hay fever with pollantin. I have no contribution to make on the subject of the use of pollantin except reports which have been made to me by my private patients, for I have not personally administered it to them, but as hay-fever patients tell one another everything new in the way of remedies, and usually try them all, whether the physician prescribes them or not, I have found a number of my own patients to have used pollantin without regard to any advice from me, and so far as I know, with entirely negative results.

Hay fever seems to me to be a vasomotor neurosis, with a good many causative factors, as it appears all the way from early May or June until frost. I have found the discharge or the condition fairly well controllable by some simple measures adapted to the individual case. If possible, previous to the attack, I get the nose in as good condition as possible, so that the resulting swelling will be less troublesome than it would be if occurring in a naturally very narrow naris. I do not think, however, that in a susceptible patient, nasal surgery necessarily prevents the attack, and do not so promise patients. When the attack is on, remedies which lessen the nasal congestion with the least amount of subsequent reaction, are the best for local use. I have found adrenalin or powdered suprarenalin useful, adrenalin, however, in no such strong doses as is advocated in the literature of the various houses who make it or similar compounds. Solution of adrenalin chlorid I have found most useful in strength of about 1/14,000 in some neutral diluent, as normal salt solution, or some one of the alkaline antiseptic nasal washes. Aristol has seemed to me par excellence, the best nasal astringent I have used. It can be used straight in a powder blower by the physician or the patient, or combined with small doses of powdered suprarenalin or with small doses of stearate of zinc, or one of the compounds of stearate of zinc and menthol, according to the discretion of the individual physician.

As an internal remedy I think nothing equals belladonna, given in the form of either an extract of belladonna or of atropin in dosage sufficient to produce a sense of dryness in the nose or throat, and then the dose diminished or given at much longer intervals.

For the suffusion and itching of the eyes, argyrol (I regret to say that this is also a proprietary remedy, but it seems to work well; possibly other silver compounds would do as well) in from 10 to 20 per cent. solution, a drop or so in the corner of each eye, seems to work remarkably well.

Under the above plan of treatment, individualized for the particular case and carried out strictly under the supervision of the physician, I find that my patients get through the hay-fever stage with a considerable degree of comfort, and can be treated at their work without the need of going away from home.

GEORGE L. RICHARDS.

A New Phenomenon in Color Conversion.

MINOT, N. D., Aug. 1, 1906.

To the Editor:—I wish to make some suggestions in connection with the Stevens' phenomenon, inasmuch as no entirely satisfactory explanation has been given, and with the hope that some element in them will lead to a further understanding of these color changes. I make the following observations on the figures illustrating Dr. George T. Stevens' article in THE JOURNAL A. M. A., July 21, 1906:

1. Fix the eye on one of the red corner blocks in Figure 1, and as the red band disappears the block on which the eye is fixed will be the last to be turned green.

2. While carrying out No. 1 another phenomenon may be obtained, namely, that all the green squares inside the red band may be converted to red.

3. It will be found easy to suppress the red band in Figure 1 if the eye is fixed on one of the outer green squares.

4. The red inside of the green band in Figure 2 can be converted into green, but it is more difficult than a similar trial with Figure 1.

5. Make a square opening in a sheet of paper so that it will just inclose the red band in Figure 1 and cover the green field outside. Fix the eye on either a red or a green square and all will become red.

6. Place a lead pencil dot in the outer third of the green in Figure 3, and fix the eye on or beside the dot, and the entire field will be made green. I could not accomplish this completely if the dot was on the red.

7. Place a dot midway between Figures 1 and 2 on the page and fix one eye on it. The phenomenon may be observed in both figures at the same time.

The above observations contain some points of interest which it may be well to note. Fixation on some particular point in the field aids in producing the changes. I was unable to accomplish a result with Figure 3 until a point of fixation was added. In No. 5 it is demonstrated that the colored band is enough predominant over the inclosed squares to produce the phenomenon and in No. 2 it is seen that this may be obtained before it is overshadowed by the greater predominant field of color with the production of the typical phenomenon. It will be most easily recognized at the moment the band begins to change, or just as it is coming back. In the seventh an interesting point comes to notice and would suggest the falsity of Stevens' principles of explanation. We here see the phenomenon present in both figures, at the same time eliminating the red from Figure 1 and the green from Figure 2, and a clear green and a red field persisting.

To see if the accommodation could play any part in the phenomenon, the following experiments were made: *a.* I paralyzed the muscle of accommodation in one of my eyes with atropia and the phenomenon was observed as before. A plus lens was used. *b.* A patient was taken who had one eye under atropia for three weeks, and the lens added. He had observed the phenomenon with the good eye previously, and at once induced it with the paralyzed one. *c.* As a final test I took a patient whose cataractous lens had been removed five weeks before, and with a correcting glass could read large print. He said he could obtain the phenomenon in Figure 1, but not in Figure 2.

From these experiments and observations the conclusion may be drawn that accommodation is not a factor in the production of the phenomenon, and with its elimination we may also exclude the difference in refraction of the various colored rays as an element in its explanation.

C. A. KLEMER.

License of Physicians Practicing in Two States.

JEFFERSON, WIS., July 30, 1906.

To the Editor:—I wish to thank you for the thoughtful courtesy which prompted you to ask me to use your columns to present the medical examiners' side of the question regarding licensure as applied to those who are practicing in cities situated near to state boundary lines. There are some earnest, honorable men who seem to think that medical examining boards are likely to be very unjust and arbitrary in their action in such cases. We are always willing to answer any questions that are asked concerning our work and glad to have this opportunity to place the matter before your readers in its proper light, as the paragraph on page 2007 of THE JOURNAL, June 30, 1906, is based on erroneous information.

We have recently issued six licenses to as many physicians, all of whom reside in Stillwater, Minn., and who have been in continuous practice in that city and across the St. Croix River in Wisconsin since and prior to July 1, 1897, on exactly the same requirements and for the same fee that resident physicians of Wisconsin pay under similar circumstances, viz., $5.00. If a doctor is not properly qualified to avail himself of the interpretation of our law thus placed on it by our board, it may be necessary for him to secure a reciprocal license, which he can easily do if he is a reputable practitioner, and which I think every reasonable person would be willing to do, inasmuch as it applies to his competitor across the state lines the same as it does to him. I can not see as it is a matter that can be limited to a certain given distance from the boundary lines of any state, but must be administered on general and equitably broad principles that will not leave any cause for complaint. In the case cited it is admitted by the Minnesota physicians that they practiced in Wisconsin the same as though there were no boundary line. If a physician were located and licensed on the Wisconsin side of the river and had complied with all the requirements of the Wisconsin medical law, is he sure that he would relish active competition from those who had not done so?

A national plan is proposed that provides for certain boundaries. Would those boundaries be on wheels, also, to be moved as desired by the individuals or to be ignored entirely by them?

I am not prepared to favor the cumbersome machinery of a national examining body with the many component subordinate parts that would be necessary to conduct its affairs properly. I should expect it naturally to resolve itself into about the same condition of affairs as exists to-day. I prefer to agree with those of my colleagues on examining boards who are and have been consistently working to secure as nearly universal reciprocity as possible and practicable. I have attended most of the meetings that the American Confederation of Reciprocating Examining and Licensing Medical Boards has held in the past five years, but many of the states have not been represented by any one for the purpose of securing information on this very important problem of the many that are constantly presenting themselves to medical boards for solution.

All physicians will acquit the members of the Wisconsin board from being governed by mercenary motives, I think, when they consider that the members receive the munificent salary of $5.00 a day and actual expenses while engaged in performing their duties as members of the board.

I would not have any one imagine that I am averse to criticism, because I think that just and well-considered criticisms, based on facts and correct premises, ought to be and usually are a help to those who are making honest endeavors. I am sure that all true physicians are as earnestly trying to help as I or any one else, and, with my best wishes for the success of every one thus engaged, I am,

Very truly yours,

J. V. STEVENS,
Secretary of the Wisconsin Board of Medical Examiners.

[This letter is in response to an inquiry sent to the secretary of the Wisconsin Board of Medical Examiners, which was prompted by a letter from a physician who protested against the requirements of the Wisconsin Board of Medical Examiners making it necessary for a physician living and practicing in Minnesota near the border line to obtain a Wisconsin license before he can practice in Wisconsin.—EDITOR.]

Book Notices

PRACTICAL MEDICINE SERIES, Comprising Ten Volumes on the Year's Progress in Medicine and Surgery. Under the general editorial charge of G. P. Head, M.D., Professor of Laryngology and Rhinology, Chicago Post-Graduate Medical School. Vol. IV. Gynecology edited by E. C. Dudley, A.M., M.D., Professor of Gynecology Northwestern University Medical School, and C. V. Bachelle, M.S., M.D., Gynecologist to the German Hospital, Chicago. Series 1906. Cloth. Pp. 227. Price, $1.25. Chicago: The Year Book Publishers, 1906.

This is a summary of new and useful additions to the literature of gynecology and shows evidence of careful compilation. The book is well illustrated.

THE EYE AND NERVOUS SYSTEM, Their Diagnostic Relations. By Various Authors. Edited by W. C. Posey, A.B., M.D., Professor of Ophthalmology in the Philadelphia Polyclinic; Surgeon to the Wills Eye Hospital, etc., and W. G. Spiller, M.D., Professor of Neuropathology and Associate Professor of Neurology in the University of Pennsylvania, etc. Illustrated. Cloth. Pp. 988. Price, $6.00. Philadelphia: J. B. Lippincott Company.

This work, which is a unique one in the English language, is the result of the combined labor of twenty-two contributors, each of whom is a specialist in either ophthalmology or neurology. That two such specialties should be represented in a work of this kind is not to be wondered at when the intimate relations which exist between the eye and the nervous system are considered. Diseases affecting the nervous system produce symptoms connected with the eye perhaps more frequently than with any other organ, and on the other hand abnormal conditions of the eye underlie many symptoms associated with the nervous system. While the intricacies of ophthalmology and of neurology belong to the specialists, the general practitioner should at least be familiar enough with the methods of examination to enable him to recognize the symptoms when present and to correctly interpret their significance. These points are all well presented from the viewpoint of the ophthalmologist, as well as from that of the neurologist, and the interdependence of the two specialties clearly shown. This is not only of great value to the general practitioner, but also to many specialists who at times are inclined to take too narrow a view of diseases which affect their particular field. The chapters on the so-called functional disorders or neuroses are especially interesting and instructive, and show a great deal of work on the part of the authors. The work as a whole is an excellent one and it can be warmly commended, not only to specialists, but particularly to the general practitioners.

A HANDBOOK OF CLIMATIC TREATMENT, INCLUDING BALNEOLOGY. By W. H. Huggard, M.A., M.D., F.R.C.P. Cloth. Pp. 536. Price, $4.00. New York: The MacMillan Company, 1906.

Our author says in his preface that the chief aim of this book is to place the therapeutics of climate on a secure foundation. He offers a new classification of climates, which he believes is especially fitted for the needs of the physician. The effects and sources of the mineral springs of Europe are considered very fully. Especial attention is given to the physiologic effects of the elements of climate. Chapters are devoted to these effects under such headings as temperature, humidity, atmospheric pressure and light. The reaction of individuals to climate is not forgotten—what may be called the idiosyncrasies of individuals to climate. The author considers this for the most part an inherited influence and one which makes it impossible for man to change to extreme climates successfully and to maintain permanent good health. This point he considers at length and lays down a general rule—and, by the way, not a new one—that a race can be directly and at once acclimatized only in cases where the mean temperature is not far removed from that of its native land, though by gradual movements through successive generations perfect acclimatization may be attained even in countries widely differing in temperature from the original home of the race. No mention is made of acquired immunity to diseases peculiar to climates and of the probability of overcoming these diseases. Two races apparently are exceptions to this general rule: the Jewish and Gypsy races, both of whom approach to the cosmopolitan type.

In classifying climates he adopts a principle of division according to the demand made by the climate for the production of heat. It is evident that temperature is the chief governing factor in this classification. Although at one end of the

scale the degree of humidity is an important factor, and at the other end of the scale the presence or absence of wind is important. Approximately 120 pages of this volume are devoted to the description of health resorts. A fair amount of this space is given to descriptions of resorts in the United States, but the list is very limited. The next section of the volume, amounting to a little more than 100 pages, is devoted to balneology. In this the mineral springs of the United States are entirely neglected, but the description of those of Europe is accurate and will be found useful. The last section of the volume is devoted to therapeutics, and in it the effects of climatology and balneology on the treatment of such diseases as obesity, anemia, gout, rheumatism, rickets, diabetes, syphilis, tuberculosis, chronic catarrhal diseases of the respiratory tract, diseases of the nervous system, of the kidney and bladder, uterus and its appendages and skin.

The book is an interesting one and yet not so complete or so valuable as to be calculated to displace the very good treatises on this subject now in our libraries.

MEDICAL AND PHARMACEUTICAL LATIN. By Reginald R. Bennett, Pharmaceutical Chemist, with an introduction by Henry G. Greenish, F.I.C., F.L.S. Cloth. Pp. 442. Price, $2.40. Philadelphia: P. Blakiston's Son & Co., London, J. & A. Churchill, 1906.

The introduction comments on the growing tendency in Great Britain to abandon the use of Latin in prescription writing and states that it is regrettable. In these days of rapid and easy traveling foreign prescriptions are often seen, and Greenish thinks that if all prescriptions were written in Latin which would be intelligible to the pharmacists all over the world a step would be made in obviating the inaccuracies in the dispensing of these prescriptions. The book starts with some elementary exercises in the Latin grammar. Part II deals with the reading and writing of prescriptions and takes up some syntactical rules. Part III consists of a very full vocabulary, while an appendix gives translations of French and German prescriptions.

INTRODUCTION TO GENERAL INORGANIC CHEMISTRY. By Alexander Smith, Professor of Chemistry and Director of General and Physical Chemistry in the University of Chicago. Cloth. Pp. 780. Price, $2.25. New York: The Century Company. 1906.

Current text-books on chemistry may conveniently be divided into three classes: One class, the most numerous, is composed of those which were written ten, twenty or more years ago, and which have been patched up from one edition to the next in a more or less serious attempt to bring them in accord with modern chemical thought. One of these, a rather pretentious volume on "medical and pharmaceutical chemistry," of nearly a thousand pages, in its last edition devotes a single page to the modern solution theories, but subsequently does not again refer to them in a single instance. Another class contains the books which are hastily and crudely compiled from standard works by their authors, usually overworked teachers, for use by their own classes. Their preparation has its inception in the prospect of financial gain, in prestige to be gained, or because of a desire to present the subjects in the teacher's own way. In so far as they are a medium of communication of the teacher to his students they perform a definite function, but their general exploitation is not called for. Thus a text-book prepared for use in medical schools is also exploited for use in schools of pharmacy; but within its pages the author betrays woeful ignorance of everything pharmaceutical. To the third class of text-books belong those that are written by teachers who, after many years of preparation, find time to write down their own ideas of a proper course in chemistry. It is needless to say that the number of such newly written text-books which appear annually are few, but Professor Smith's text-book belong to this class. In the preface the author says: "This book, the first draft of which was written six years ago, is the outgrowth of the introductory course in chemistry which the author has given for fifteen years," and every chapter indicates that it is written by one who is both teacher and chemist.

The following, taken from an introductory chapter on "Simple and Compound Substances," illustrates the broad plan of the book:

Until recently a body made up of one or more specific elements had never been found to yield any simple substance different from those used in preparing it. In other words, one element had never been turned into another. And this is still true so far as the familiar elements are concerned. Experience with radium (q. v.) which seems to decompose and give helium, however, may lead to a revision of the conception of an element. Indeed, even the more radical hypothesis, that all the so-called elements are made of one fundamental material, has never lacked supporters. Perhaps the recent discoveries in regard to electrons will lead to a conclusion, already formulated by J. J. Thomson, that the kinds of simple matter differ only in the number and arrangement of the corpuscles constituting their atoms.

The book fuses modern views and recent advances with the older, standard material, in such a way that the former are not excrescences, but become integral parts of one carefully digested system. Physicians who wish to keep in touch with modern chemical ideas will find no better work that this of Professor Smith.

THE EXAMINATION OF THE FUNCTION OF THE INTESTINES, by Means of the Test-Diet, Its Application in Medical Practice and Its Diagnostic and Therapeutic Value. By Prof. Dr. Adolf Schmidt. Authorized Translation from the Latest German Edition, by Charles D. Aaron, M.D. Cloth. Pp. 88. Price, $1.00 net. Philadelphia: F. A. Davis & Co., 1906.

This little book should be studied by every practitioner who is not fully informed of the latest methods of examining patients suffering from diseases of the intestines. The book is well written and well translated; the statements are clear and it is full of ideas that are fresh. The author attempts to do for diseases of the intestines by the study of the feces what has been done for diseases of the stomach by the study of its content after a test meal has been administered. He insists that the test meal is as necessary to standardize the content of the intestine as it is in studying diseases of the stomach. He describes the test meal which he has found best and the number of simple chemical tests which throw light on the pathologic condition of the intestinal tract, and also describes fully the results of microscopic examinations which are quite as necessary for drawing conclusions from such investigations. The first three chapters are devoted to the test meal and methods of examination; the fourth to the significance of symptoms, particularly the presence of mucus, unchanged bile pigment, and variations of the content of bile pigment; to the significance of insufficient fat digestion and of meat remains and starch remains, and also the significance of putrefaction of the contents of the intestines. Another chapter is devoted to intestinal disturbances due to the stomach, liver and pancreas; and the last to the independent disturbances of the intestines, such as organic diseases like ulcer, catarrh, and atrophic diseases, and also the functional disturbances of various kinds.

PRONTUARIO DI POSOLOGIA Dei Rimedi Più Usati Nella Terapia Infantile. By A. Conelli. Cloth. Pp. 64. Price, L. 2. Milan, Italy: Ulrico Hoepli, 1906.

This is an up-to-date Italian dose-book of the remedies used in children's diseases.

I. PRINCIPI FONDAMENTALI DELLA ANTROPOLOGIA CRIMINALE Guida Per I Giudizi Medico-Forensi Nelle Questioni Di Imputabilita. By G. Antonini. Cloth. Pp. 64. Price, L. 2. Milan, Italy: Ulrico Hoepli, 1906.

The Lombrosian ideas as regards criminality and degeneracy have been rather pervasive of late years, though not every one who adopts them has studied them intelligently. This little work by a follower of the distinguished Italian criminologist is intended to give in a concise form the general principles of the positive school of penology. In Chapter I a historical sketch is given of the use of the theories on which are based the tenets of the Italian school, and this is followed in order by chapters on the anthropologic theory of crime and the biologic phenomena of atavism, the medicolegal theories of imputability, and their connection with the defense of society and the disposition of the criminal, and the work concludes with a rather more lengthy chapter on mental disorders with reference to their relations to responsibility, etc. This last chapter is not so specially connected with the theories of the work, but supplements them, inasmuch as questions of mental disease and responsibility are so closely connected with those of criminality in practical social conditions.

Miscellany

Lay Self-Medication and Counter-Prescribing.—The *Medical Fortnightly* says: "The recently inaugurated campaign against 'patent medicines' and secret nostrums has emphasized as the really important factor for danger, not so much the poisonous character of the drug or combination used, as the fact of lay self-medication and counter-prescribing in drug-stores. These pernicious customs allow drugs which are perfectly safe in safe hands to be administered blindly and often in the presence of definite physical contraindications which a qualified physician would determine before prescribing. This has led to the classification as poisons of some of our most useful drugs—drugs which are safe and harmless under normal conditions and in proper doses. The state has safeguarded the public by exacting of those who would treat the sick a demonstration of their ability safely and scientifically to do so. Not alone is a knowledge of drugs a requisite, but the physician must know their action in the presence of any condition the patient may exhibit and be quite as ready to withhold intelligently as to administer. Yet the average corner drug-store will prescribe for more patients in a day than will the average qualified physician. The druggist may know drugs, but he does not know patients! By what right does he prescribe for even the commonest of bodily ills? Does a license as pharmacist include the right to practice medicine? True, it is only just to state that there are druggists and druggists, and that the evil of counter-prescribing is not universal. Unfortunately, however, it is so general as to be an acknowledged fact. This is borne out by the published list of fatalities from acetanilid and compounds containing acetanilid. This list may be very inaccurate and greatly exaggerated, as has been claimed, yet it tells a tale of self-medication and druggist-medication, and the coal-tar derivatives are suffering where a system is really at fault. Were it possible to have the coöperation of the druggist, lay self-medication would soon be ended, and to the ultimate benefit of the druggist. This is a habit which can but be condemned, as it means the employment of medicines in absolute blindness. The habit is nothing less than pernicious, and criminal where drugs are so administered to infants and the helpless. In this day of free dispensaries and excessive gratuitous treatment, even the poorest in any section of our country need not lack competent medical advice if they will have it. Much has been said pro and con concerning the coal-tar derivatives and compounds containing acetanilid. It is not our purpose to enter into the controversy deeply. We believe, as we have stated above, that a good and useful agent is being calumniated while the real evil is overlooked. Acetanilid is not a poison in the ordinary acceptance of that term; few doctors believe that it is. It is a good and useful friend which will serve well, if intelligently employed, but it is not intended to be eaten by the teaspoonful or taken in the presence of cardiac disease. These products were never built for the use of any but a learned profession, and this brings us back to censure of the system of self-medication and prescribing by the incompetent. We do not believe that acetanilid can be so combined as to be a "safe household remedy." The exploitation of any compound containing it to this end may well be looked on with serious apprehension. It may be that no harm will result for a long time, but the chance is there, and it is an evil chance. Let us hope that the day may soon come when physician, manufacturer and druggist will combine to have the practice of medicine conducted in safe, scientific and legitimate channels, and it is no selfish belief that the best interests of all three, and that of the patient as well, will be promoted by the new régime."

Dangers of Asparagus.—W. Gross, of Dresden, relates that a patient always had hemorrhage from the lungs after eating asparagus. On one occasion when visiting away from home this man noticed the odor of asparagus before dinner and informed his hosts of his idiosyncrasy. They assured him that no asparagus would come on the table and none was to be seen, but some had been used in preparing the soup before it was strained. After eating half a plate of the soup he was seized with a severe hemoptysis almost at once. In another case, in an elderly woman, acute nephritis followed free ingestion of asparagus during several days, and in a third case renal dropsy was very much aggravated by it. In his communication to the *Allg. med. Ct. Ztg.*, 1906, lxxv, 496, Gross warns that persons with a tendency to hemoptysis, kidney trouble or dropsy should be cautious in eating asparagus.

The Pituitary Body.—E. A. Schäfer and P. T. Herring, at the meeting of the Royal Society, London (*Nature*, June 21, 1906), read a paper on "The Action of Pituitary Extracts on the Kidney," the principal points of which were as follows: Intravenous injections of saline extract of the infundibular portion cause dilatation of the kidney vessels, accompanied with increased flow of urine. With the first injection this result is accompanied by a rise of blood pressure and the contraction of systemic arteries. With subsequent injections a fall instead of a rise usually occurs, indicating that the diuretic action is independent of the blood pressure, and this leads one to conjecture that it is due to a special constituent of the extract. Certain reagents tending to abolish the blood pressure were also found to leave the diuretic effect unaltered. The diuretic, as well as the pressor and depressor constituents of the extract, are not destroyed by boiling. They dialyse through parchment paper and are insoluble in absolute alcohol and ether. Extracts of the anterior lobe exhibit no physiologic activity. The conclusion deduced is that the infundibular portion produces a secretion which passes into the blood, and which both indirectly by its general action on the vascular system, and directly by its special action on the renal vessels and epithelium, assists in promoting and regulating the secretion of urine; in other words, the internal secretion of the gland is ancillary to the renal functions.

Importance of Hydrochloric Acid for Infantile Digestion.—J. Schütz recently announced at a meeting of the Vienna local medical society that important information can be obtained from chemical analysis of the stomach content of infants. The reason why so few practical results have been realized to date is because no uniform opinion prevails in regard to the biologic importance of the various constituents of the gastric juice, and further research is needed in this line. He believes that the total acidity is the main differential point. His tests demonstrated that in cow's milk the power to bind the hydrochloric acid after the milk has been acted on by the rennet declined by 80 and even 100 per cent., according to the completeness of the rennet action. Such a difference does not exist in human milk. The findings in regard to free hydrochloric acid, consequently, depend not only on the amount of the acid secreted but also on the energy of the rennet action. He remarked that pediatrists have hitherto entirely overlooked, it seems, the influence of the hydrochloric acid on pancreatic secretion, and yet this is probably of great importance. From this point of view the capacity of various foods to bind the hydrochloric acid will well repay study. The *Wien. klin Wochschr.* for July 12 contains a brief summary of his communication.

Nostrums.—The tendency with many in practice is entirely too much toward routine and it can only be eliminated by work. Knowledge is not unconsciously absorbed, and to keep up with the knowledge of medicine one must use new texts and good journals. If legislation should suddenly prohibit the sale of nostrums, within 24 hours the leaves would be turned and the dust brushed from thousands of texts on therapeutics which for years have been shamefully neglected. Is this not enough to cause the progressive, energetic element of the profession to rise en masse against nostrums? Let us remove the temptation.—*Am. Jr. of Clinical Medicine.*

Attendance at Medical Meetings.—The following remarks are printed on the program of the thirty-third annual meeting of the Northern Tri-State Medical Association: "The man who does not attend medical meetings should be classed with the quacks. If he is above the average he should give society the benefit of his wisdom. If he is below, he should go and learn. If you have a good idea bring it with you. If you have a fallacy the sooner you get it knocked out of you the better for suffering humanity. The public would do better to inquire 'Do you attend medical societies?' than 'Where did you graduate?'"

Association News

Date of Next Session of the American Medical Association.

The next annual session of the American Medical Association will be held at Atlantic City, New Jersey, Tuesday, Wednesday, Thursday and Friday, June 4, 5, 6 and 7, 1907.

ATLANTIC CITY, Aug. 9, 1906.

To the Members of the American Medical Association:—A joint meeting of the executive committee of the American Congress of Physicians and Surgeons and of a committee of the Board of Trustees of the American Medical Association was held at Atlantic City, August 8, for the purpose of arranging the dates of the meetings of the two associations so that one should immediately follow the other. After considerable discussion various reasons became known which would seriously interfere with the attendance of the members of either one or the other. It was, therefore, decided that the meeting of the Congress of Physicians and Surgeons should remain as already fixed by the executive committee, namely, in May, and the date for the next meeting of the American Medical Association in Atlantic City was named as June 4 to 7.

WILLIAM H. WELCH.
E. E. MONTGOMERY.
PHILIP MARVEL.

Committee of the Trustees of the American Medical Association.

Marriages

VICTOR PACYNA, M.D., to Miss Ethel Friend, both of Chicago, August 7.

C. MAURICE STAFFORD, M.D., to Miss Fannie S. Cotton, both of Detroit, June 26.

EULER JONES CALDWELL, M.D., to Miss Annie M. Tryon, both of Rio Vista, Cal., July 16.

HARRY G. FRIDGE, M.D., Sanford, Miss., to Miss Emma Sharp, of Seminary, Miss., August 5.

F. A. RENNER, M.D., St. Jacob, Ill., to Miss Della May Midgley, of Lebanon, Ill., August 4.

H. L. CASTLEMAN, M.D., to Mrs. Rose Lovejoy, both of Sylacauga, Ala., at Birmingham, Ala.

GEORGE ALLEN STAPLES, M.D., to Miss Brownie Wadley, both of Dubuque, Iowa, August 2.

OREL A. KIBBE, M.D., Harmony, Minn., to Miss Corinne Broughton, of Minneapolis, August 8.

DAVID H. KELLER, M.D., Philadelphia, to Miss Ella Garis Phillips, of Stroudsburg, Pa., August 4.

MCCLURE SCOTT, M.D., Wheeling, W. Va., to JESSIE M. THORNTON, M.D., of Staunton, Va., several months ago.

Deaths

Thomas Dudley Wooten, M.D. University of Louisville (Ky.) Medical Department, 1853, one of the most prominent practioners of Austin, Tex.; local surgeon for the Houston and Texas Central Railroad; formerly president of the board of regents of the University of Texas; a member of the State Medical Association of Texas, Seventh District Medical Society, and its first president; Travis County Medical Society and the Southern Surgical and Gynecological Association; a delegate to the International Medical Congress; a surgeon in the Confederate service during the Civil War, during which he served successively as surgeon of the Second Regiment, Seventh Division, Missouri state troops, chief surgeon of McBride's division, surgeon-general of the Missouri forces, medical director of the Division of Tennessee, of the Division of Arkansas and of the Western Army Corps, died at Eureka Springs, Ark., August 1, from gastritis, after a brief illness, aged 77.

William J. Class, M.D. Rush Medical College, 1894, since 1897 a medical inspector of the Chicago Department of Health, who has been ill and on leave of absence for several months and living on a cabin launch in pursuit of health; one of the most earnest students of bacteriology in the middle west, who has already made himself famous by his research work on cerebrospinal meningitis and scarlet fever, with especial reference to serum therapy, died in Mercy Hospital, Benton Harbor, Mich., from cerebral thrombosis, August 9, aged 32. For more than two years he had suffered from arteriosclerosis and valvular heart disease. He was a member of the American Medical Association.

Benjamin Franklin Hamilton, M.D. Charity Hospital Medical College, Cleveland, 1867, a member of the American Medical Association, Medical Society of the State of Pennsylvania and Venango County Medical Society, and president of the latter society in 1878; one of the best known practitioners of Western Pennsylvania, died August 3 at his home in Emlenton, after an illness which began while he was on his way to attend the Boston meeting of the American Medical Association, aged 68.

James C. Harmon, M.D. University of Vermont, Medical Department, Burlington, 1866, a veteran of the Civil War and one of the oldest and best-known practitioners of Champaign County, Illinois, a resident of Rantoul for more than thirty years, died in the Burnham Hospital, Champaign, August 1, after a protracted illness, aged 66.

Charles D. Mackey, M.D. Baltimore Medical College, 1882, health officer of the Borough of Montrose, Pa.; from 1901 to 1905 coroner of Susquehanna County, Pennsylvania; from 1888 to 1901 a member of the Susquehanna County Medical Society, died at his home in Montrose, July 31, from cerebral hemorrhage, after an illness of one day.

Martin Ludwig Lauber, M.D. Pennsylvania Medical College, Philadelphia, 1850, a surgeon in the Navy during the Civil War, and after its close surgeon for many years on the Pacific Mail Steamship Line, died at his home in West Earl, Pa., Dec. 24, 1905, from locomotor ataxia, after an illness of twelve years, aged 74.

Albert C. Johnson, M.D. College of Physicians and Surgeons of Chicago, 1901, a member of the Æsculapian Medical Society of the Wabash Valley and of the Vermillion County (Ill.) Medical Society, died at his home in Sidell, Ill., June 10, from tuberculosis of the spine, after an illness of one year, aged 34.

Edward E. Womersley, M.D. Medical Department of Columbia University, Washington, D. C., 1883, for five years in the regular Army and for the last twenty-two years a resident of Omaha, Neb., died at his home in Omaha, August 3, from dropsy, after an illness of several months, aged 56.

Thomas Brennan, M.D. New York University, New York, 1877, prominently connected with the St. Vincent de Paul Society, physician to the Actors' Fund, and at one time connected with the Board of Health, died at his home in New York City, July 21.

Calvin DeFord Snyder, M.D. University of Maryland School of Medicine, Baltimore, 1898, contract surgeon United States Army since 1900, was killed at Julita, Island of Leyte, Philippine Islands, August 9, in a fight with Pulujanes, aged 28.

Abraham Jobe, M.D. Medical Department of Transylvania University, Lexington, Ky., 1849, one of the oldest practitioners of Carter County, Tennessee, died at the home of his daughter in Elizabethton, July 30, after a brief illness, aged 89.

William G. Houtz, M.D. Philadelphia, 1851, for twenty-five years a practitioner of Troy Grove, Ill., and thereafter a resident of Lincoln, Neb., died at his home in Lincoln, June 30, from septicemia, after an illness of seven days, aged 75.

George W. Jones, M.D. Cleveland Homeopathic Medical College, 1901, and a member of the faculty of that institution, died at the Huron Street Hospital, Cleveland, August 6, a few hours after an operation, aged 35.

James Gillard, M.D. American Eclectic Medical College of Ohio, Cincinnati, 1887, died at his home in Sandusky, Ohio, August 2, after an illness of seven months, which began with pleuropneumonia, aged 63.

Mary E. Stark, M.D. Woman's Medical College of the New York Infirmary, New York City, 1880, formerly of Rochester, N. Y., died at her home in Los Angeles, Cal., July 31, after a long illness.

Charles M. Showman, M.D Starling Medical College, Columbus, Ohio, 1897, of North Baltimore, Ohio, was drowned while bathing in the Maumee River, near Grand Rapids, Ohio, August 2, aged 34.

Benjamin Charles Bentley, M.D. Cooper Medical College, San Francisco, 1893, of Bakersfield, Cal., died at the home of his parents in Woodbridge, Cal., July 22, from paralysis, aged 38.

Ithiel Silsby Stevens, M.D., Cincinnati College of Medicine and Surgery, 1880, of Peoria, Ill., died August 1 from acute spinal disease, after an illness of one day, aged about 55.

Isaac Lemon Hughes, M.D. Medical College of Georgia, Augusta, 1856, died at his home in Fort Worth, Tex., May 30, from nephritis, after an illness of two months, aged 75.

Stanton Blake Drew, M.D. University and Bellevue Hospital Medical College, New York City, 1902, died at his home in Jacksonville, Fla., July 28, after a brief illness.

Thomas J. Gerron, M.D. Medical Department of Vanderbilt University, Nashville, Tenn., 1893, died at his home in Argo, Tex., April 30, from pulmonary tuberculosis.

Henry Rauch, M.D. Tulane University of Louisiana Medical Department, New Orleans, 1893, died at his home in Herod, Ga., August 3, after a prolonged illness.

Charles W. Isaminger, M.D. Cincinnati College of Medicine and Surgery, 1891, died at his home in Alpena, Mich., from cerebral hemorrhage, August 4.

George M. Zimmerman, M.D. Jefferson Medical College, Philadelphia, 1870, died at his home in Butler, Pa., from cerebral hemorrhage, August 6, aged 61.

James Weir, M.D. University of Louisville (Ky.) Medical Department, 1878, of Owensboro, Ky., died at Virginia Beach, Va., August 9, aged 50.

Williams A. Wilson, M.D. Trinity Medical College, Toronto, Ontario, 1886, died at his home in Junction City, Kan., July 31.

George W. Mason, M.D. Medical College of Ohio, Cincinnati, 1873, died at his home in Stafford, Ohio, July 30.

Henry R. Shacklett (Years of practice, Tennessee, 1889) died at his home in Nashville, June 20, aged 73.

Death Abroad.

Paul C. H. Brouardel, M.D., LL.D., professor of legal medicine at Paris, and one of the most prominent medical men of his time, died at Paris, July 24, aged 69. His works on medico-legal questions have become classics, and as an official delegate to international gatherings and president of innumerable societies and congresses he was a familiar figure. Not unlike Virchow in appearance, his position in France was like Virchow's in Germany in his pioneer work and leadership. He won equal eminence in forensic medicine and in public hygiene. The legislation of the last 25 years in regard to official medicolegal experts and matters affecting the public health was largely due to Brouardel. His wise counsels aided in international sanitary conferences and the more recent international antituberculosis congresses and in matters affecting military hygiene. He presided at the recent antituberculosis congress at Paris. The records of his work and teachings as director of the laboratory at the Paris morgue are as interesting as Poe's stories. Since 1878 he has been one of the editors of the *Ann. d' hygiène publique et de médecine légale* now in its seventy-eighth year. Almost his last work was the planning of an institute for research on criminal psychology.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish name or address will be faithfully observed.

EXAMINATION OF SCHOOL CHILDREN.

PLAINFIELD, N. J., Aug. 3, 1906.

To the Editor:—Will you please publish a list of articles of value to physicians doing school work; that is, the examination of public school children?

F. J. HUGHES.

ANSWER.—The following is a partial list of articles published on school inspection, etc., in the past five and a half years, and indexed in the INDEX of THE JOURNAL:

TITLE.	JOURNAL AND DATE.
Medical School Inspection. G. Emerson.	Brooklyn Med. Journal, May, 1904.
Diseases of School Children. H. Bryce.	Canada Lancet (Toronto), April, 1904.
Medical Inspection of Schools. A. Friedlander.	Lancet-Clinic (Cincinnati), May 28, 1904.
Medical Inspection of Schools. H. MacMurchy.	American Medicine (Philadelphia), May 21, 1904.
Duties of Medical School Inspectors.	THE JOURNAL A. M. A., May 7, 1904, page 1243. (Abst.)
Medical Inspection of Schools. Adelung.	Southern Calif. Pract. (Los Angeles), November, 1904.
Sanitary Inspection of Schools. H. Surmont.	Presse Médicale (Paris), No. 25, March, 1905.
Educational Influence of Medical Inspection of Schools. Axmann.	Deutsche med. Wochenschrift (Berlin), XXXI, No. 5, Jan. 31, 1905.
Relation of School Methods to School Diseases. W. J. Herdman and J. H. McBride.	THE JOURNAL, A.M.A., April 15, 1905, page 1175.
Test of Public School Children. G. L. Leslie.	Southern Calif. Pract., June, 1905.
Plea for National and Local Boards of School Hygiene. A. M. Smith.	THE JOURNAL A. M. A., Sept. 30, 1905, page 978.
Medical Inspection of School Children.	THE JOURNAL A. M. A., Dec. 30, 1905, page 2017.
Medical Supervision of Schools, etc. C. G. Jennings.	Detroit Med. Jour. and Archives of Pediatrics, July, 1905.
Medical Inspection of Schools. G. L. Kiefer.	Jour. Mich. State M. S. (Detroit), November, 1905.
Medical Inspection of Schools. E. v. Adelung.	Calif. State Jour. of Med. (San Francisco), June, 1905.
School Life in Relation to Health. P. Zenner.	Lancet-Clinic, October, 1905.
Why School Children Should Be Examined. T. A. Frazier.	Am. Practitoner and News (Louisville), May, 1906.
Annual Systematic Examination of School Children. J. P. McMahon.	Wisconsin Med. Jour. (Milwaukee), December, 1905.
School Medical Inspection in Chicago. W. D. Byrne.	THE JOURNAL A. M. A., Nov. 25, 1901, page 1385.
Necessity for Annual Systematic Examination of School Children. F. Allport.	Calif. State Journal of Medicine, February and March, 1904.
Eyes and Ears of School Children. F. Allport.	Vermont Med. Monthly (Burlington), June 15, 1906, and Medicine (Detroit), April, 1906.
Systematic Examination of the Eyes of Defectives. F. P. Lewis, Buffalo.	American Medicine, August, 1905.
Observations Made on Inspection of Schools. L. M. Powers.	Southern Calif. Pract., July, 1903.
Medical Inspection of Schools. S. R. Towne.	Western Med. Review (Lincoln, Neb.), July, 1903.
Medical Inspection of Schools. L. S. Somers.	Medical News (N. Y.), Jan. 17 and Jan. 24, 1903.
Medical Inspection of Schools. H. P. Johnson.	Medical Mirror (St. Louis), May, 1903.
Medical School Inspection in New York. C. Herrman.	New York Med. Jour., March 7, 1903.
Medical Inspection of Schools. DeL. Rochester.	Buffalo Med. Jour., July, 1902.
Medical Inspection of Schools. J. Lee.	New York State Jour. of Med., August, 1902.
Medical Inspection of School Children. M. D. Hoge, Jr.	Atlanta Jour.-Record of Medicine, April, 1902, and Virginia Medical Semi-Monthly (Richmond), April 11, 1902.
Medical Inspection of Schools. M. Anderson.	Illinois Med. Jour. (Springfield), February, 1902.
Daily Medical Inspection of Schools. D. S. Lamb.	New York Med. Jour., Nov. 30, 1901, Dec. 7, 1901, and Dec. 14, 1901.
Medical Examination of School Children. E. M. Greene.	Philadelphia Med. Jour., Feb. 16, 1901.

REGISTRATION REQUIRED BEFORE PRACTICING MEDICINE.

——, OHIO, AUG. 10, 1906.

To the Editor:—I am a graduate from a medical school in good standing, and have an Ohio state license to practice medicine. Is there any law prohibiting me from practicing my profession in *another state* until that state board holds its examination at which time I would take the examination?

T. C.

ANSWER.—As the laws of all states specifically require registration before a physician can begin practice, this must certainly be complied with. In a few states, however, viz., Arkansas, Florida, Louisiana, Mississippi and North Carolina, a temporary permit may be secured pending the next examination. Possibly one might be secured in some other states.

TREATMENT OF BURNS.

YONKERS, N. Y., Aug. 4, 1906.

To the Editor:—Will you kindly inform me, through THE JOURNAL, your opinion of (1) the best treatment of extensive burns of the body, first and second degree, involving large area and threatening life of patient? (2) What are the objections, if any, to use of creolin? I used it here in a case, child 2 years, burns involving about one-third body surface, and in twenty-four hours found phenol in the urine and feces and child showing grave septic symptoms. Stopped its use and applied boro-salicylic ointment; child recovering. Any information will be greatly appreciated.

H. H. STEVENS.

ANSWER.—1. Nothwithstanding the amount of experimental and clinical work which has been done recently on extensive burns, the cause of early death in these cases remains unsolved. Undoubtedly, however, shock, such as exists after any severe injury, is always present and demands the same general treatment, namely, morphia hypodermically for the relief of pain, adrenalin given in the same manner to hold up the blood pressure, application of warmth to body, dependent position of head, friction to unburned portions of skin, etc. Owing to the tendency in some cases to the development of stupor and coma, only sufficient morphia should be given to ease the pain, when it should be discontinued. The question of the formation of toxic substances, of hemolysins and of the changes which take place in the blood corpuscles need not be discussed here. All, however, recognize the desirability of favoring elimination so soon as reaction has taken place, and to this end the introduction of physiologic salt solution per rectum or subcuta-

neously is desirable. Concerning the local treatment of the burned area, the tendency at present is to the open-air method. The uncovered skin is left exposed to the air, blebs are removed, the areas gently dried, dusted with stearate of zinc or other bland dusting powder, and fanned to hasten drying and the formation of crusts. Contrary to early ideas the pain under this line of treatment soon subsides and healing is more rapid than under moist dressings. The unburned portion of the surface should be bathed and cleansed often and the temperature of the room should be maintained high in order to favor the action of the skin. The air must be kept as pure as possible and the utmost cleanliness maintained about the bed linen and everything else that comes in contact with the patient. A liberal supply of pure water should be provided, and only liquid nourishment allowed until the dangers of intestinal complications have passed. It should be understood that these remarks apply to the particular class of burns mentioned in the question, namely, extensive burns of the first and second degrees threatening life. Of course, there are many local applications of value for the treatment of more circumscribed burns, and other methods of treatment more suitable to burns of particular regions and of greater degree.

2. Creolin is a coal-tar product. It is not a definite substance, but consists of a mixture of several substances which pass over in the distillate at a temperature of from 180 to 220 degrees. Some of its constituents, such as the pyridin-like and phenol compounds, are highly toxic. The percentage of phenol present has been found to vary from 24 per cent. in some of the German preparations to 22.6 per cent. in some English preparations. A number of deaths have occurred from its use locally, as in uterine and vaginal injections in 2 per cent. solution. In children, even a 1 to 1,000 solution applied externally, has produced acute eczema with fever. As it is an indefinite compound containing a number of toxic substances, it should be used in extensive burns only with the greatest circumspection.

The Public Service

Army Changes.

Memorandum of changes of stations and duties of medical officers, U. S. Army, week ending Aug. 11, 1906:

Keefer, Frank R., surgeon, left Presidio, Monterey, Cal., en route to Camp of Instruction at American Lake, Wash.

Hartnett, E. H., asst.-surgeon, left Fort Hancock, New Jersey, on ten days' leave of absence.

Reed, Howard A., asst.-surgeon, assigned to temporary duty, Presidio, Monterey, Cal.

Webb, W. D., asst.-surgeon, arrived at Camp of Instruction, Austin, Texas.

Richards, R. L., asst.-surgeon, reports departure from Vancouver Barracks, en route to Fort Columbia, Wash., for temporary duty.

Flagg, Charles E., asst.-surgeon, left Vancouver Barracks en route to Camp of Instruction, American Lake, Washington.

Corbusier, William H., deputy surgeon general, left Vancouver Barracks en route to Camp of Instruction, American Lake, Washington, for duty as chief surgeon.

Tefft, William H., asst.-surgeon, arrived at Camp of Instruction, Fort Benjamin Harrison, Ind.

Baker, David, asst.-surgeon, left Fort Bliss en route to Camp of Instruction, Austin, Texas.

Wolfe, E. P., asst.-surgeon, granted 30 days' leave of absence.

Newgarden, George J., surgeon, relieved from duty in the Philippines Division, to take effect at such time as will enable him to comply with the order, and will proceed on the first available transport sailing after Nov. 1, 1906, from Manila, P. I., to San Francisco, and on arrival report by telegraph to the Military Secretary of the Army for further orders.

Heysinger, James D., asst.-surgeon, assigned to duty as surgeon of the transport *Sherman*.

Vedder, E. B., asst.-surgeon, relieved from further duty as surgeon of the transport *Sherman*, and assigned to duty in Philippines Division.

Crosby, William D., surgeon, assumed the duties of Chief Surgeon, Headquarters, Department of the Columbia, in addition to his present duties as surgeon, Vancouver Barracks, Wash.

Shook, Jay R., asst.-surgeon, arrived at Camp of Instruction, Fort Riley, Kansas.

Clayton, J. B., asst.-surgeon, unexpired portion of leave revoked and to proceed to Camp of Instruction, Fort Riley, Kan.

Hansell, H. S., asst.-surgeon, left Presidio, San Francisco, en route to Camp of Instruction, American Lake, Wash.

Lambert, Sam E., asst.-surgeon, reports arrival at Camp of Instruction, American Lake, Wash.

Purnell, Harry S., asst.-surgeon, granted leave of absence for one month.

Lynch, Charles, surgeon, General Staff, detail to attend Ohio National Guard encampment revoked.

Palmer, Fred W., asst.-surgeon, ordered to report in person Oct. 16, 1906, to Lieut. Col. George H. Torney, deputy surgeon general, president examining board, Army General Hospital, Presidio, San Francisco, for examination to determine his fitness for advancement.

Moncrief, W. H., Little, W. L., asst.-surgeons, ordered to report in person to Major William H. Arthur, surgeon, president examining board, Army Medical Museum, Washington, D. C., for examination to determine their fitness for advancement.

Pyles, Will L., asst.-surgeon, leave extended fifteen days.

Gray, W. W., deputy surgeon general, granted leave of absence for ten days, to take effect on the expiration of his present sick leave.

Ford, Clyde S., asst.-surgeon, relieved from duty at Medical Supply Depot, New York City, and ordered to Philippines Division for duty.

Lewis, William F., asst.-surgeon, ordered to report in person on Oct. 16, 1906, to Major William H. Arthur, surgeon, president examining board, Army Medical Museum Building, Washington, D. C., for examination to determine his fitness for promotion.

Rhoads, Thomas L., asst.-surgeon, left West Point, N. Y., en route to Camp of Instruction, Fort Riley, Kan.

Millikin, John D., dental surgeon, left Fort Leavenworth, Kan., and arrived at Camp of Instruction, Fort Riley, Kan., for duty.

Mason, George L., dental surgeon, left Fort McPherson, Ga., and arrived at Fort Screven, Ga., for duty.

Daywalt, George W., contract surgeon, left Fort De Soto, Fla., on sick leave of absence for one month.

Rebert, Michael A., contract surgeon, left Fort Totten, N. Y., and arrived at West Point, N. Y., for temporary duty.

Brown, Ira C., contract surgeon, left Fort Niobrara, Neb., on sick leave of absence for two months.

Reagles, James, contract surgeon, left Fort Keogh, Mont., for temporary duty at Fort Assiniboine, Mont.

Kelly, John P., contract surgeon, ordered from Sequoia National Park, Cal., to temporary duty at Presidio of San Francisco.

Greenwell, Samuel A., contract surgeon, left Fort Barrancas, Fla., for duty with Coast Artillery from Fort De Soto, Fla., at Tampa, Fla., encampment of Florida National Guard.

Stuckey, Harrison W., contract surgeon, arrived at Camp of Instruction, Fort Benjamin Harrison, Ind., for duty.

Chase, Alpha M., contract surgeon, arrived at Camp Mabry, Austin, Texas, for duty.

Pinguard, Joseph, contract surgeon, left Fort Leavenworth, Kan., for Camp of Instruction at Fort Riley, Kan.

Ashburn, James K., contract surgeon, returned to Fort Lincoln, N. Dak., from duty with troops en route to camp at Islay, Wyo.

Pomeroy, William H., contract surgeon, returned to Springfield Armory, Mass., from leave of absence.

Richardson, William H., contract surgeon, left Fort Sheridan, Ill., and arrived at Camp of Instruction, Fort Benjamin Harrison, Ind., for duty.

Macy, Frederick S., contract surgeon, reports arrival at Fort Ethan Allen, Vt., from leave of absence.

Public Health and Marine-Hospital Service.

List of changes of stations and duties of commissioned and noncommissioned officers of the Public Health and Marine-Hospital Service for the seven days ending Aug. 8, 1906:

Kerr, J. W., asst.-surgeon general, granted leave of absence for fourteen days from Aug. 9, 1906.

Guiteras, G. M., surgeon, directed to proceed to Celba, Honduras, for special temporary duty.

Stiles, Ch., W., Chief Division Zoology, Hygienic Laboratory, granted leave of absence for nineteen days from Aug. 6, 1906.

Cheney, E. L., acting asst.-surgeon, granted leave of absence for ten days during month of August.

Foster, J. P., acting asst.-surgeon, granted leave of absence for twenty-four days from Aug. 3, 1906.

Gustetter, A. L., acting asst.-surgeon, granted leave of absence for thirty days from Aug. 16, 1906.

Hicks, W. H., acting asst.-surgeon, granted leave of absence for six days from Aug. 7, 1906.

Keatley, H. W., acting asst.-surgeon, granted leave of absence for two days from July 18, 1906, under paragraph 210 of the Regulations.

Kennard, Karl S., acting asst.-surgeon, granted leave of absence for thirty days from Aug. 27, 1906.

Slaughter, A. W., acting asst.-surgeon, granted leave of absence for five days from Aug. 11, 1906.

Maguire, E. D., pharmacist, granted leave of absence for thirty days from Aug. 6, 1906.

Allen, G. C., pharmacist, granted leave of absence for twenty-three days from Aug. 4, 1906, and excused for further period of one month from Aug. 27, 1906.

Troxler, R. F., pharmacist, relieved from duty at Chicago and directed to report at Bureau, Washington, D. C., for temporary duty.

BOARD CONVENED.

A Board of Medical Officers convened to meet at Port Townsend, Wash., for the purpose of making physical examination, under immigration laws, of certain persons who shall appear before the board. Detail for the board: Passed Assistant Surgeon J. H. Oakley, chairman; Acting Assistant Surgeon L. T. Seavey; and Acting Assistant Surgeon R. Lyall, Recorder.

Public Health.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended Aug. 10, 1906:

SMALLPOX—UNITED STATES.

Florida: July 28-Aug. 4, Duval County, 1 case; Escambia County, 1 case.
Illinois: Galesburg, July 21-28, 3 cases.
Louisiana: New Orleans, July 21-28, 12 cases.
Maine: July 30, Blaine, present; Mars Hill, present.
North Carolina: General, June 1-30, 172 cases.
North Dakota: General: May 1-31, 24 cases; June 1-30, 36 cases.
Ohio: East Liverpool, July 1-31, 2 cases.
Oklahoma: Oklahoma City, July 21-August 4, 3 cases.
Tennessee: Knoxville, July 21-28, 1 case; Memphis, July 28-August 4, 1 case.
Wisconsin: Appleton, July 21-28, 3 cases.

SMALLPOX—FOREIGN.

Africa: Cape Town, June 23-30, 2 cases.
Chile: Antofagasta, June 10-24, 27 cases, 9 deaths; Iquique, July 7, present.
Gibraltar: July 8-22, 2 cases.
Great Britain: Hull, July 7-14, 1 death.
India: Calcutta, June 16-23, 8 deaths; Karachi, June 24-July 1, 2 cases, 1 death; Madras, June 23-29, 2 deaths; Rangoon, June 16-23, 5 deaths.
Nicaragua: Bluefield, August 6, 1 case.
Panama: Colon, July 18-21, 5 cases.
Russia: Odessa, July 7-14, 9 cases.
Siberia: Vladivostok, June 10-14, 2 cases.
Spain: Barcelona, July 10-20, 12 deaths.

YELLOW FEVER.

Cuba: Matanzas Province, August 2, 1 death.
Mexico: Vera Cruz, July 21-28, 1 case, 1 death.

CHOLERA—INSULAR.

Philippine Islands: June 9-23, Manila, 23 cases, 17 deaths; Provinces, 100 cases, 58 deaths.

CHOLERA—FOREIGN.

India: Calcutta, June 16-23, 31 deaths; Madras, June 23-29, 8 deaths; Rangoon, June 16-23, 2 deaths.

PLAGUE—INSULAR.

Hawaii: Honolulu, August 7, 1 death.

PLAGUE—FOREIGN.

Australia: Brisbane, July 9, 1 case; Fremantle, May 27-July 9, 2 cases, 1 death; Sydney, June 9-16, 1 case.
Chile: Antofagasta, June 10-24, 10 cases, 2 deaths.
India: June 16-23, General, 1,130 cases, 952 deaths; Calcutta, 29 deaths; Karachi, June 24-July 1, 21 cases, 21 deaths; Rangoon, June 16-23, 94 deaths.

Travel Notes

DISEASES AND HOSPITALS OF THE EAST COAST OF AFRICA.

(*Continued from page 299.*)

NICHOLAS SENN, M.D.

Professor of Surgery in the University of Chicago; Professor and Head of the Surgical Department, Rush Medical College.

CHICAGO.

SALISBURY, MASHONALAND, June 8, 1906.

GERMANY'S BATTLE WITH TROPICAL DISEASES IN EAST AFRICA.

Since Germany has become interested politically and commercially in the future welfare of Africa by acquiring possessions, one on the west and the other on the east coast, she has entered earnestly and systematically in the battle against disease by contributing her lion's share to the elucidation of the nature of tropical disease and to the discovery of ways and means for their prevention and cure. If she had done nothing else in getting her modest share in apportioning and redistributing the continent, she would be excusable in taking such an active part in the stupendous struggle of the nations of the Old World for supremacy. Under the pretext of bringing the untutored savage tribes of Africa under the influence of civilization and christianization, the geography of the country has been entirely changed, and nearly all the influential European powers have acquired more or less of the spoils gained, not by conquest, but by agreement and consent among themselves.

Germany has set a good example in East Africa of what should be done for the black subjects who were not consulted when it came to the adoption of a new government and the hoisting of a strange flag. She has established in her possessions a system of public schools and has built railroads so as to reach natives in the interior, and has expanded commerce and established new industries which will give employment to the natives who are willing to work. She is protecting and aiding missionary work on the coasts and in the interior.

But her greatest work has been, and will continue to be, to give her scientific men every possible facility, encouragement and aid for the study of the etiology of tropical diseases and thereby to open up new avenues toward their prevention and cure. Germany is better prepared and better able to undertake and carry out this stupendous task successfully than any other nation which has taken part in the fragmentation of old Africa.

Germany has a higher estimate of scientific medicine and contributes more toward its advancement than any other country in the world. She has an army of scientific men well trained for this kind of work and anxious to risk their lives, if need be, in the fever-stricken jungles in order to contribute their share to the glorious victory of preventive medicine in Africa, as well as in all other tropical countries. She has commenced her philanthropic work in earnest and it is progressing with astonishing speed. A number of her best bacteriologists are now in the field and hard at work with their well-known enthusiasm and thoroughness. All this work is being done under the general direction of Professor Koch, Germany's ablest and most famous bacteriologist. He knows the East Coast of Africa, and more especially German East Africa, where he is now for the third time, better than any other scientist. At present he is located at Amani, two hours by rail from Tanga, where he is expected to remain for several months before he will go to Uganda as the head of a commission appointed by the imperial government for the special purpose of discussing ways and means of getting rid of German East Africa's greatest pest, the tsetse fly, the most formidable enemy of man and the domestic animals. It is expected that he will remain in Uganda, in the neighborhood of Lake Victoria Nyanza, at least a year for this special purpose and it is to be hoped that he will crown the work of his life by winning a victory over this terrible scourge that hangs over the country like a dark, motionless cloud. Germany's determination to improve the sanitary conditions of her African possessions is apparent in all of the hospitals in the German part of the coast. In all of them there are well-equipped laboratories and competent bacteriologists, who are assisted by trained nurses, women especially educated for this kind of work.

PROFESSOR OLLWIG'S RESEARCHES ON MALARIA IN DAR-ES-SALAAM.

As chief of a small commission appointed by the imperial government to investigate the causes of malaria in Dar-es-Salaam, Professor Ollwig, as the result of his researches, came to some very important conclusions. Malaria prevailed to an alarming extent in the city, for which he found a very satisfactory explanation by the existence of numerous breeding-places for the anopheles in the many low, marshy places and pools of stagnant water. He at that time suspected that the culices, which were very numerous, might also, like the anopheles, serve as intermediate hosts, but a very careful examination proved that this was not the case and left the only logical conclusion that the anopheles were the sole and only direct cause of the disease. He next took up the subject of the prevention of malaria. Two methods suggested themselves: (1) The removal or destruction of the carriers of the disease, the anopheles, as suggested by Ross, and (2) the destruction of the plasmodium parasites in the patient's blood by the quinin treatment proposed by Koch. Everything was done by the city authorities to remove or render harmless the breeding-places of the anopheles by filling up of holes and pools in which water accumulated during the rainy season, but the results of these efforts were disappointing. Next a trial was made, but only on a small scale, to kill the mosquitoes in their breeding-places by the employment of petroleum, but this measure again failed in reducing to any appreciable extent the prevalence of the disease. Koch's quinin prophylaxis was then given an extensive trial. It became necessary to ascertain the location of persons infected with the plasmodium. This was done by systematic blood examinations on a large scale. At first the natives could be induced only with difficulty to subject themselves to this ordeal, but gradually they got rid of the suspicion that the proceeding was a kind of sorcery, and made no further objections to it. The specimens of blood from women and children who dwell in a separate part of the huts were at first always obtained by trained women nurses, a consideration which was very much appreciated by the natives. The large percentage of persons infected with the malaria became apparent from the following tables:

	Number.	Parasites Present.	Percentage.
1. *Hindus.*			
Children less than 1 year old	27	8	29.6
Children from 1 to 5 years old	83	27	32.5
Children more than 5 years old	650	105	16.1
2. *Negroes.*			
Children less than 1 year old	66	25	39.0
Children from 1 to 5 years old	137	56	40.8
Children more than 5 years old	790	159	20.1
Adults	3338	238	7.6

The apparently low susceptibility to malaria of infants as compared with children more than 5 years old is due to the fact that children born during the dry season are exempt from infection until the rainy season sets in. These blood examinations were made during the dry season. If they had been made during the rainy season, the percentage of infected persons would have been much larger. The tables are also interesting in showing that the susceptibility to malarial infection

diminishes with advancing age. These blood examinations for diagnostic purposes, and made with a view of ascertaining the location and extent of infected districts, are now the rule and have yielded most satisfactory scientific and practical results.

The results of these examinations are in direct contrast with those of Koch in New Guinea, who failed to find the parasite in the adults, a circumstance explained by Ollwig, who believes that in that most malarial of all countries the anopheles, always present, gradually create an immunity which can not be established in localities like East Africa, where these mosquitoes are present only during the wet season. This explanation again comes in conflict with the observations made by A. Plehn in Kamerun, where he found the parasite in a larger percentage of adults, the climate being almost identical with that of New Guinea. The presence of basophilic cells Ollwig regards as suggestive of malaria. The slides are prepared without cover. The blood smear, rather thickly applied, is dried by immersion in alcohol with the legend on the side of the slide which is not immersed. The specimen is stained with Manson's fluid (borax 5, methyl blue 2, water 100). In the examination of blood from people representing different nationalities and living in different places in the city, it was found that out of 171 adults the blood contained malarial parasites in 16 instances, while in children a much larger proportion was found. Persons infected with the parasite had to continue the quinin treatment for two and a half to three months before the blood was free from plasmodia. The mortality of malaria in young children who are neglected is very large, and the parents very often rather let them die than make the necessary exertion to go to the hospital for the quinin. Ollwig accused a man of inexcusable neglect, who, notwithstanding his request, had failed to bring his child for treatment. The child died and the only reply the father made, on being told that he was the cause of its death, was that it mattered little, as his wife was soon to become a mother again. The negro appreciates paternal bliss only after the child is old enough to run about and in doing so becomes a source of amusement to him; the babe has little attraction for him.

The quinin in prophylactic doses of 15 grains was administered every ninth and tenth day and continued for two months. It was soon ascertained that the time of treatment was not long enough, and it was then extended to two and a half to three months. The drug is best given either early in the morning or late in the evening on an empty stomach. To improve the results still more, the quinin days were increased to three, and, while the two days' treatment left a smaller percentage in which the parasites could still be found at the end of treatment, the three-days' treatment improved the results materially, leaving only one-half of one per cent. of cases in which some parasites could be found in the blood at the end of treatment, and these were always small children who often rejected the quinin by vomiting or were suffering from diarrhea, thus diminishing in both instances the absorption of the drug. The quinin is administered to adults in tablet form, to children in solution, and experience has shown that the administration in solution has had the best effects and that method has since been employed exclusively. To reduce the bitterness of the drug each patient is given a piece of sugar each time he takes the medicine. In very young children the quinin is well diluted and poured in the mouth while the child is held on the back and the nostrils are closed by pressure. If it is rejected by vomiting, the dose is repeated at once. Adults suffer for some time from buzzing in the ears, dizziness and trembling of the hands when they are under the full influence of the drug. In children, somnolence is often observed. Eucquinin was tried in doses twice as large as those of quinin, but without any advantage over the latter.

Black-water fever was found only in neglected cases of malaria. The attack appears without exception a few hours after the administration of quinin. Effective treatment of malaria with quinin is the surest protection against this disease. As Koch's prophylactic quinin treatment is becoming more general, malaria has greatly diminished in frequency. Hindus and negroes are almost, if not entirely, immune to black-water fever.

The period of incubation of malaria, as determined by accurate observation, is from ten to twelve days. Europeans returning home to recover from malaria often come back in a worse condition than when they left, in the meantime only taking quinin when they suffered from attacks, but never subjecting themselves to the thorough quinin treatment, relying on the change of climate to effect a permanent cure. The results of prophylactic treatment of malaria with quinin in three years reduced the malaria cases in Dar-es-Salaam one-half. The prophylactic treatment is advised as a general rule only in cases in which patients have suffered an attack, or in whose blood the presence of parasites has been demonstrated by microscopic examination, with the exception of people who, either on business or visiting tours, must spend some time in localities where the danger of infection is very great. In such instances the prophylactic treatment is recommended and should be continued for at least a month after return from the trip.

I have given here a brief sketch of the work and results of Ollwig's malaria, which is, in reality, the basis on which Koch's prophylactic treatment of malaria is founded. The treatment, as it is carried out now by physicians, assistants and trained women nurses, consists in making blood examinations of persons who have been exposed to infection to ascertain the existence of parasites in the blood and to determine, as far as can be done, the locality where the infection occurred, and in carrying out in infected cases the radical quinin treatment. This treatment as now generally practiced consists in administering every eighth or ninth day 1 gram of quinin in solution on an empty stomach. This prophylactic treatment corresponds with that recommended by Manson. Others have recommended smaller and more frequently repeated doses. For myself I am satisfied, from my own personal experiences in the most dangerous localities, including Central America, Cuba and Porto Rico, that persons who have not suffered from this disease will create a partial, if not a complete, immunity by taking daily a 5-grain dose of quinin with the juice of a lemon, at least two weeks before exposure to infection, and as long as they reside in a malarial district, or, if the residence is a prolonged one, until the drug has produced an immunity to the infection.

PREVALENCE OF MALARIA IN EAST AFRICA.

Dr. Fischer, an African traveler, says that the continent is infected everywhere, where it is fertile and unfertile, even where it is healthy. Buchner is still more pessimistic in his opinion of the extent of malarial diseases in Africa when he makes the statement that there is not a square meter in the country without fever miasm, and many other travelers and authors are in accord with these statements. Professor Koch has traveled all over German East Africa and the adjoining countries and has made most painstaking observations and researches, and has found in the German possessions a number of subalpine regions absolutely free from anopheles and consequently free from malaria. He mentions more particularly the Usambara and Ukebe mountain plateaus and recommends these two localities as favorable for European settlers. In the lowlands, and especially along the coast, malaria prevails everywhere to an alarming extent. Of this I have had abundant opportunity to satisfy myself in visiting the various hospitals, as in all of them the patients suffering from malaria and its consequences occupied at least two-thirds of all the beds. It is one of the laudable intentions of the scientific men of Germany who serve their country in Africa to rid their possessions of this pest by destroying or rendering harmless the breeding-places of the anopheles on the one hand, and on the other, by depriving them of the parasite derived from malarial patients by prophylactic and curative treatment with quinin and by isolation of patients suffering from the acute form of the disease. The results thus far obtained are encouraging, and it is only a question of time before the country will be made safe for Europeans so far as malaria is concerned. The present topographical limit of the disease, according to Koch, is an altitude of 3,000 feet above the level of the sea.

(To be continued.)

State Boards of Registration

COMING EXAMINATIONS.

CALIFORNIA State Board of Medical Examiners, San Francisco, August 21. Secretary, Chas. L. Tisdale, San Francisco.

WYOMING State Board of Medical Examiners, State Capitol, Cheyenne, September 5. Secretary, S. B. Miller, Laramie.

MASSACHUSETTS Board of Registration in Medicine, State House, Boston, September 11-12. Secretary, Edwin B. Harvey, Boston.

OKLAHOMA Board of Medical Examiners, Guthrie, September 25. Secretary, J. W. Baker, Enid.

NEW YORK Boards of Medical Examiners, Albany, September 25-28. Chief of Examining Division, Charles F. Wheelock, Albany.

Maine July Report.—Dr. William J. Maybury, secretary of the Maine Board of Registration in Medicine, reports the written and oral examination held at Augusta, July 10-11, 1906. The number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 41, of whom 39 passed and 2 failed. The following colleges were represented:

PASSED.

College.	Year. Grad.	Per Cent.
Medical School of Maine	(1906)	79, 80, 81, 82, 82, 84, 85, 87, 87, 87, 88, 89, 89, 91, 92, 93.
Boston University	(1889)	85; (1906) 85.
Harvard Medical	(1904)	87; (1906) 83.
College of P. & S., Boston	(1904)	78; (1906) 85, 87, 92.
Tufts College Med. School	(1906)	85.
Baltimore Med. Coll.	(1906)	78.
University of Maryland	(1906)	80, 83.
Johns Hopkins Med. School	(1906)	95.
Columbia University	(1903)	92.
Jefferson Med. Coll.	(1900) 91; (1906)	87.
University of Pennsylvania	(1906)	80.
University of Vermont	(1905)	88.
McGill University	(1902) 84; (1906)	84.
Laval University, Canada	(1904) 88; (1906)	81, 89.

FAILED.

Baltimore University	(1905)	69.
College of P. & S., Boston	(1905)	62.

Michigan's New Schedule.

Dr. B. D. Harison, secretary of the Michigan State Board of Registration, sends us the following revised schedule of preliminary requirements for admission to medical colleges. There are, at the present time, too many different terms being used by colleges and examining boards to designate credits and the step taken by the Michigan board toward uniformity in this direction is certainly commendable. Dr. Harison's explanatory letter follows the schedule.

MINIMUM STANDARD OF PRELIMINARY EDUCATION AS REQUIRED FOR ENTRANCE TO RECOGNIZED MEDICAL COLLEGES.

In Force Since Sept. 16, 1903. As Amended June 13, 1906.

A certificate of graduation from a recognized and reputable high school, academy, college or university, issued after four years of study of at least eight months in each separate year (or an equivalent recognized qualification), with the following minimum requirements:

GROUP I.—ENGLISH LANGUAGE.

(a) English grammar; (b) rhetoric and composition.

GROUP II.—HISTORY.

(a) History of the United States, as presented in McLaughlin's History of the American Nation, Johnston's History of the United States, or equivalent text.

(b) General History, as presented in Meyers' General History, or equivalent text. Greek and Roman history or English history will be accepted as a substitute for general history.

GROUP III.—MATHEMATICS.

(a) Algebra—fundamental rules, fractions, simple equations, involutions and evolution, the calculus of radicals and quadratic equations, as given in Olney's Complete School Algebra, or Beman and Smith's Elements of Algebra, or some equivalent text.

(b) Geometry—plane geometry, as given in Beman and Smith's Plane and Solid Geometry, or equivalent text.

(c) Plane trigonometry, as given in Wentworth's Trigonometry, or equivalent text.

GROUP IV.—NATURAL SCIENCES.

(a) Physics, as presented in Carhart and Chute's Elements of Physics, or an equivalent text.

(b) General biology, or botany and zoology, as presented in Sedwick and Wilson's General Biology, or Spalding's Introduction to Botany and Kingsley's Comparative Zoology. These courses will be accepted only when accompanied by laboratory work.

(c) Chemistry, as presented in Freer's Elementary Chemistry, or an equivalent amount of work in Remsen's Introduction to the Study of Chemistry.

(d) Physiology and hygiene, as presented in Colton's Briefer Course, or an equivalent text.

(e) Physical geography, as presented in Tarr's First Book of Physical Geography, or equivalent text.

GROUP V.—MODERN LANGUAGES.

(a) German, French or Spanish—The applicant must be able to read German, French or Spanish.

GROUP VI.—CLASSICS.

Latin grammar.
Latin prose composition.
Reading—four books of Cesar's Gallic War.
Greek grammar.
Prose composition.
Xenophon or Homer.

NOTE.—An applicant for endorsement of preliminary education presenting a recognized literary diploma or certificate for entrance to medical schools of a minimum standard of not less than nine (9) major units, or twelve (12) minor units, in accordance with the minimum standard of preliminary education adopted by the board, may be conditioned in three units and must remove such conditions before the Michigan Board of Preliminary Examiners, or other recognized authority (course and examination in an authorized literary college or attendance and examination in a recognized secondary or high school) before beginning the second course in a recognized medical school, counting toward the degree, otherwise the applicant will be held as not having complied with the requirements of the board relative to its standard of preliminary education; provided that if at the time of seeking endorsement the applicant, in addition to the nine (9) major units or twelve (12) minor units required in the recognized diploma or certificate as a qualification for conditions, presents a recognized supplemental certificate of course and examination in necessary studies not covered in the presented diploma or certificate, of a date prior to registration and examination in a medical school, such supplemental certificate may be made a part of and included in the original diploma or certificate on which endorsement is sought in accordance with the method of standard adopted by the board.

DR. HARISON'S LETTER.

August 2, 1906.

Dear Doctor:—I enclose schedule of standard of preliminary education recently adopted by this board.

An attempt in this schedule has been made to harmonize the methods of measure adopted in the past by the New York Board of Regents and the Michigan State Medical Board.

New York demanded 48 counts, or 12 Michigan units; and Michigan demanded 15 units, a unit representing four recitation periods a week on a subject throughout a year.

By the new arrangement a count represents one recitation period a week throughout a year; a major unit, five recitation periods or five counts, and a minor unit four recitation periods or four counts. The New York secondary course is a uniform five recitation or count periods a week, while Michigan has four recitations or count periods a week in English and history, the remaining studies being five recitation or count periods a week.

By the old system, in qualifying for the Michigan standard, the applicant from New York lost 20 per cent. of actual qualification, and the Michigan applicant, approximately, 15 per cent. This loss also affected other states.

Under the new schedule, the former 12 units of New York multiplied by five recitations or counts a weekly equals 60 counts, or 12 major units, the former 15 units or Michigan multiplied by four counts weekly, equals also 60 counts, or 15 minor units. Michigan applicants, however, by converting 3 minor units, or 12 counts, into 2 major units, or 10 counts, make it possible to qualify in the major unit column with a minimum total of 12 major units, thereby receiving credit for five recitation a week subjects, which was not possible under the old method. The former standard of preliminary education adopted by the board has not in any sense been lowered, but the system of measure has been made flexible.

The ultimate result aimed at through the new schedule is the adoption of the count system in the near future, the present schedule being a combination of the unit and count systems.

The educational value of a detailed standard and its exact administration can not be overestimated, resulting as it does in a large percentage of increase over the apparent standard and absolutely preventing the official recognition of a defective qualification incident to a standard expressed in general terms with the impossibility of its exact administration.

B. D. HARISON, Secretary.

Michigan May Report.—Dr. B. D. Harison, secretary of the Michigan State Board of Registration in Medicine, reports the written examination held at Detroit, May 14-16, 1906. The number of subjects examined in was 14; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 88, of whom 87 passed and 1 failed. The following colleges were represented:

PASSED.

College.	Year. Grad.	Per Cent.
Kentucky School of Med	(1905)	76.
Grand Rapids Med. Coll.	(1906)	94.6
Michigan College of Med. & Surg.	(1906)	83.4, 85.1, 87.5, 88, 89.1, 89.3, 91.4, 93.3.
Detroit Homeo. Med. Coll.	(1906)	85, 85.4, 87.4, 87.7, 87.7, 87.8, 90.8.
Detroit Coll. of Med.	(1905) 91.5, 92.6; (1906)	79.3, 80.5, 81.5, 83.6, 84.4, 85, 85.3, 85.5, 85.5, 86.5, 86.8, 86.8, 86.8, 86.8, 87, 87, 87, 87.1, 87.2 87.2, 87.4, 87.4, 87.6, 87.7, 87.7, 87.7, 87.9, 87.9, 87.9, 87.9, 88, 88.1, 88.3, 88.3, 88.3, 88.4, 88.4, 88.5, 88.5, 88.6, 88.9, 88.9, 89.1, 89.3, 89.3, 89.3, 89.4, 89.6, 89.6, 89.6, 89.7, 89.8, 89.9, 90, 90, 90.4, 90.6, 90.8, 90.9, 90.9, 91.1, 91.1, 91.1, 91.2, 91.6, 91.8, 92, 92.4, 92.4.

FAILED.

Detroit Coll. of Med.	(1906)	69.5

The following questions were asked:

GYNECOLOGY.

1. What can you say of acquired atrophy or superinvolution of the cervix and body of the uterus? Does the condition remain permanents? Give its etiology. 2. What is menorrhagia? Give its causes and treatment. 3. What is amenorrhea? Its varieties and causes? Give treatment. 4. What are the varieties of vicarious menstruation? Give its causes and treatment. 5. How should general anesthetics be used in operations following childbirth. What are the dangers in their use? Which the least dangerous?

HISTOLOGY AND EMBRYOLOGY.

1. What is adipose tissue? How distributed? 2. Name the coats of the arterial wall and describe the intima. 3. How is the colloid material of the thyroid gland produced? 4. Explain the development of the hair follicles. 5. Describe the tactile corpuscles and the Pacinian bodies.

BACTERIOLOGY.

1. What are bacteria; saprophytic bacteria; pathogenic bacteria; non-pathogenic bacteria; toxins and albumins? 2. State local and general effects of bacteria and the conditions necessary to produce infection. 3. State methods for the recognition of bacteria, methods of cultivation. Why do you stain bacteria, and name three of the most commonly used stains? Give composition of each. 4. Give the details for the examination of a sample of sputum for the tubercle bacillus. 5. What conditions, including temperature and time, are required for the destruction of spores, and on what conditions does immunity from bacteria depend?

ANATOMY.

1. Describe temporal bones and give the articulations. 2. Describe the femoral artery and give its branches. 3. Describe the thoracic duct. 4. Describe the medulla oblongata. 5. Describe the brachial plexus with its branches. 6. What are the ductless glands? Give the blood supply of each. 7. What is the foramen of Winslow? 8. Describe the structure of the kidney. 9. What are the ligaments of the uterus? What is a corpus luteum? 10. Give the nerve supply of the ocular muscles.

PHYSIOLOGY.

1. Define metabolism. Give classification. 2. Describe, how, respectively, the intracranial, arterial and venous blood pressure are regulated. 3. What is glycosuria? Give in detail a reliable test for albuminuria; also one for diabetes mellitus. 4. What do you understand by muscular co-ordination and on what does it depend? 5. Describe the sympathetic nervous system. What are its functions? 6. What is lymph? Give mode of its reaching the lymphatic vessels and glands and finally the venous circulation. 7. State the function of the aqueous humor of the eye. 8. Give entire process of digestion, beginning with mastication of albuminous food, of fatty food, of starchy food. 9. Explain the function of bile and the glycogenetic function of the liver. 10. What is meant by the systole and diastole of the heart?

PATHOLOGY.

1. What pathologic conditions are frequently found in the pancreas? Discuss the relation of the pancreas to diabetes. 2. What is retrograde metastasis? How does it occur? 3. Mention and give causes of pigmentary changes occurring in various chronic diseases. 4. Name the connective tissue tumors. Name the epithelial tumors. Draw a cross-section of the most common epithelial tumor. 5. What is known of the pathology of yellow fever? 6. Is immunity a pathologic condition? On what does it depend? 7. Describe the pathologic condition of the kidneys due to chronic inflammation. Give the four principal causes. 8. What is meant by the umbilication of cancer? Give causes. 9. What is the difference between a general disease and a constitutional disease? 10. Give the process of repair of an incised wound of the skin united by suture. What parts are not replaced? Explain the apparent contraction of the cicatricial tissue.

HYGIENE AND PUBLIC HEALTH LAWS.

1. What are the requirements and responsibilities of a practicing physician in cases of contagious and infectious disease as required by our statutes? Name the diseases to be reported to the board of health. 2. What measures are essential for the restriction of smallpox, diphtheria and scarlet fever? State time of quarantine for each. 3. Describe best method of cleansing a room that had been occupied by a case of smallpox, and what precautions would you take to prevent extension of the disease. 4. What are the provisions of the law in this state relative to vaccination? 5. What are the essential qualities of drinking water and what tests would you use to determine its purity? Also state best method of purifying water.

PRACTICE.

1. Describe and give the causes that produce fever, and name the ordinary antipyretic measures used. 2. Describe typhoid fever, how diagnosed, and your treatment of it. 3. Describe pernicious anemia, how dinatured, clinical picture, etc. Describe myocardial degeneration, give causes that produce it and treatment. 5. Describe acute lobar pneumonia, give physical signs. What micro-organisms are present. Differential points. 6. Name the different forms of motor disturbances. (Paralysis, spasm, etc.) Give the lesions that produce them. 7. Describe the different forms of epilepsy. Differentiate epilepsy from hysteria. 8. Give your idea of the proper care of artificially fed babies; kind of food, method of preparation, necessary changes. 9. Describe acute otitis media in children. How would you treat it? 10. Describe erysipelas. Cause, forms, treatment.

MATERIA MEDICA AND THERAPEUTICS.

1. What are the important dietetic, medicinal and pharmaceutical uses of water? 2. Acidium arsenosum? What can you say of its taste? Its medicinal effects, internal and local? Its uses as an irritant and escharotic. Give symptoms of its poisonous effects. 3. Define the term oxytocic. What is ergot? What are its preparations? Its physiologic effects? Its uses and abuses as a medicine? 4. Give the physiologic and medicinal effects of pilocarpus. 5. What is turpentine? What can you say of its physiologic effect and its use as a medicine?

HOMEOPATHIC MATERIA MEDICA.

1. By what law do potentized drugs act? Do crude drugs obey a different law? 2. Enumerate and differentiate the symptoms of the various salts of mercury used in homeopathic practice. 3. What is arsenicum album? Give an epitome of its symptomatology. 4 Give the guiding symptoms of phosphorus. 5. Give the guiding symptoms of sulphur.

HOMEOPATHIC PRACTICE OF MEDICINE.

1. Describe the symptoms, objective and subjective, which appear during the incidence of lobar pneumonia. Differentiate it from other diseases presenting similar symptoms. 2. Give the physiologic and medical treatment of pneumonia. 3. To what does malarial fever owe its origin? How may it be prevented? Describe the full course of a typical case of this disease. 4. What is jaundice? Name the various forms. How caused. 5. Give etiology and treatment of pneumothorax. 6. What is the prognosis, in combined valvular lesion of the heart, as to age, sex and conditions of life? 7. Give the treatment of Bright's disease in its various stages. 8. Secondary anemia—what is it? Give treatment. 9. What are the symptoms, prognosis and treatment of tabes dorsalis? 10. Give the sensory, motor and psychic stigmata, or signs of hysteria.

SURGERY.

1. Give causes, symptoms and treatment of gonorrhea. 2. What is the true significance of leucocytosis? Is its presence a proof of pus? 3. Define shock and its treatment. 4. Define hyperemia, inflammation, infection. 5. What are the indications for circumcision? Describe the operation. 6. What is varicocele and how would you treat it? 7. Give the uses of heat and cold in surgical affections. 8. Give the uses of the different kind of ligatures. 9. Amputation of the breast. Describe each step in the operation for a malignant growth. 10. Give the manner of feeding after a surgical operation.

CHEMISTRY AND TOXICOLOGY.

1. What are lunar caustic, calomel, corrosive sublimate, blue vitrol, Epsom salts, Rochelle salts, tartar emetic? 2. Marsh's test is a test for what? Give test. 3. Classify carbohydrates. Give formula for each group. 4. Give the mercurial test. 5. Give the different kinds of tests for albumin in the urine. 6. Give equations and how would you make chlorid of zinc. 7. What is amido acid and where principally found? 8. Define a poison. 9. Classify poisons according to their action. 10. Give symptoms and treatment for strychnia poisoning.

EYE, EAR, NOSE AND THROAT.

1. What do you understand by the terms hypermetropia, myopia, astigmatism? 2. What treatment do you recommend in cases of ophthalmia neonatorum—in what way can you prevent its occurrence? 3. What is the treatment for acute periostitis of the mastoid process? 4. What is croupous laryngitis, its causes and pathologic anatomy? 5. What is acute tonsillitis, its causes and pathologic anatomy?

OBSTETRICS.

1. What are the signs of pregnancy? 2. Name the most common presentation, and describe the mechanism of labor in that presentation. What conditions must be present before forceps can be applied with safety? 4. Laceration of cervix and perineum: Describe the various forms of laceration and time, manner and materials of repair. 5. What complications may appear after completion of labor and what measures should be taken to prevent their appearance?

MEDICAL JURISPRUDENCE.

1. Define mania, giving its prognosis, and, briefly, its treatment. 2. Wherein does lunacy differ from idiocy? 3. What is paranoia, and how would you treat it? 4. Under what conditions might the medical attendant be justified in producing abortion? 5. Discuss the evidences of live birth, subsequent to respiration.

Pennsylvania June Examination.—The report of the State Medical Examining Board of the examinations held in June shows that 355 persons obtained the required general average of 75. Four hundred and five candidates were examined at this time. The report shows, therefore, that there were 50 failures. This is a few less than the failures of last year. The general average attained was reported good. Thirteen of the new licenses will be issued to women, and among the candidates examined were 25 who failed in the examinations held in 1905; 10 of these 25 passed this year. Nine men did not qualify and one was expelled from the examining room for cheating.

Tennessee May Report.—Dr. T. J. Happel, secretary of the Tennessee State Board of Medical Examiners, reports the written examinations held at Memphis, Nashville and Knoxville, May 2, 1906. The number of subjects examined in was 8; total number of questions asked, 64; percentage required to pass, 75. The total number of candidates examined was 246, of whom 150 passed and 96 failed, including 54 non-graduates. The following colleges were represented:

PASSED. College.	Year Grad.	Per Cent
Atlanta Med. Coll.	(1874) 75; (1899)	75.
Georgia Coll. of Eel. Med. & Surg.	(1906)	75.
College of P. & S., Atlanta	(1899)	81.
George Washington University	(1905)	78.
College of P. & S., Chicago	(1902)	91
American Med. Miss. Coll.	(1906)	80.7
Illinois Med. Coll.	(1906)	85.
University of Iowa	(1903)	87.5
Louisville Med. Coll.	(1902) 84; (1905)	75.
Kentucky University	(1904)	83.
University of Louisville	(1885) 75; (1905) 87.5, 88.5, 90.
Hospital Coll. of Med., Louisville	(1903) 85.5; (1904) 77.7, 86; (1905) 76.
Tulane University	(1901) 82; (1903) 75.
Johns Hopkins Med. School	(1903)	95.5
College of P. & S., Baltimore	(1886)	86.
Grand Rapids Med. Coll.	(1901)	91.
University of Michigan	(1870) 75; (1905)	84.
New York University	(1894)	88.
University & Bellevue Hosp. Med. Coll.	(1905) 88.2; (1906) 78.
Long Island Coll. Hosp.	(1898)	84.
Leonard Med. Coll.	(1905)	86.
Memphis Hosp. Med. Coll.	(1903) 92.5; (1904) 76, 88.5; (1906) 75, 75, 75, 78, 78.2, 81, 82, 82.5, 83, 84.5, 85, 85.2, 87.5, 87.5, 93.5, 98.5.
University of Nashville	(1872) 78; (1905) 83, 88; (1906) 75, 76.6, 77, 78, 78.2, 80, 80, 81, 84.5.
University of Tennessee	(1899) 85; (1904) 75, 89.5; (1905) 78; (1906) 75, 77.3, 85, 86.

Meharry Med. Coll.....(1905) 75; (1906) 75, 75, 77, 81, 90.
Vanderbilt University .....(1903) 80; (1906) 76.5, 80, 90, 90.2
Tennessee Med. Coll. (1904) 75; (1905) 75; (1906) 75, 78, 78, 79.8, 83, 85, 85.3, 87, 90.6, 92, 92.
Chattanooga Med. Coll. (1898) 75; (1901) 75; (1903) 75; (1905) 77; (1906) 75, 75, 77, 79, 82, 82, 83, 84, 86, 87, 87.
University of Virginia .....(1904) 75.
Royal Coll. of Surg., Edinburgh .....(1899) 90.
Non-graduates, 75, 75, 76.3, 77.2, 77.6, 78.3, 78.5, 80, 80, 80, 80, 81, 81, 81, 81, 81.5, 81.5, 82.5, 83, 83, 83, 83.5, 84, 84.6, 85, 85.5, 85.5, 86.2, 87, 87, 87.1, 90, 90, 91, 92, 92.5, 92.5, 95.

FAILED.

Georgia Coll. of Ecl. Med. & Surg.....(1901) 52.
Kentucky University .....(1906) 65.
Louisville Hosp. Med. Coll.....(1905)* 90.
Maryland Med. Coll. .....(1900) 58.6
Miami Med. Coll. .....(1879) 60.
Meharry Med. Coll. (1904) 71.7; (1905) 60, 65; (1906) 50, 50, 65, 65.
University of Nashville (1905) 49, 65; (1906) 57, 65, 65, 68, 70, 71
University of Tennessee .....(1906) 61, 63, 69.5, 70
Chattanooga Med. Coll (1897) 67.3; (1904) 65; (1906) 61.5, 64, 67, 70.5.
University of the South .....(1905) 69, 71.3
Tennessee Med. Coll.....(1906) 63.3, 64.5, 70, 73
University of West Tennessee .....(1906) 65.
Memphis Hosp. Med. Coll.....(1903) 51.5
Vanderbilt University .....(1881) 48.5
Gate City Med. Coll., Texarkana ....(1903) 62.5; (1906) 46.
American Med. Miss. & Training School for Nurses† (Atlanta) .....(1906) 74.

* Rejected for copying.
† Said to grant medical degrees.

Therapeutics

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulæ and outlines of treatment are answered in these columns.]

Burns.

The following combination is recommended by E. D. Piper, of Chicago, in the treatment of burns:

℞. Zinci stearatis .....℥ss 6|
Lanolini .....℥iii 12|
Petrolati, liq., q. s. ad.....℥i 30|

M. Ft. unguentum. Sig.: To be applied locally to the affected surfaces.

According to Piper, this combination prevents the odor, quiets the pain and tends to stimulate the tissues to rapid healing. It prevents the dressings from sticking and thus foregoes a great deal of suffering on the part of the patient. He reports good success with this ointment, even in burns extending over a great part of the surface of the body, and prefers it to powder dressings because of the ease of removal.

Smithwick, in *Med. Exam. and Pract.*, states that there are three indications for the treatment of burns: (1), relieve pain; (2), combat shock; and (3), cleanse the lesion and keep it clean.

The pain and suffering accompanying burns and scalds are the most severe of any injury and demand prompt attention. He recommends, in severe cases, that a hypodermic injection of morphin be given, followed by the inhalation of chloroform until the morphin has had sufficient time to act. Compression by means of bandages to the limbs should be applied to give support to the relaxed blood vessels. Subcutaneous injections of warm normal saline solution should be given in order to raise the vascular tone by filling the relaxed and dilated blood vessels.

In severe cases, strychnin or digitalis may be required to raise arterial tension. According to Crile, atropin, nitroglycerin and alcohol should be interdicted on account of their tendency to lower blood pressure.

Smithwick states that all burns and scalds should be treated as infected wounds, consequently as soon as the patient recovers sufficiently from the shock the injured parts should be as thoroughly cleansed as possible. In such cases, he states that it is advisable to administer an anesthetic in order to apply a thorough cleansing by washing the parts with sterilized water and mild soap, followed by a douche of warm saline solution. Mercuric chlorid and like antiseptics are not advised because of their irritating properties. All bleb and vesicles should be clipped open, allowing the skin to fall back in its original position as a protection to the denuded surfaces. The surface should then be gone over in order to remove all moisture remaining before applying the dressing.

In applying the dressing three cardinal principles are emphasized: (1), The dressing must be absolutely clean; (2), it should be made comfortable to the patient; (3), it should be so arranged that the dressing will not stick to the wound and can be easily removed without causing pain. Smithwick recommends, therefore, an oily mixture as a dressing, and mentions the lime water and linseed oil combination as an efficient one, when rendered aseptic. The dressings should be changed frequently, as they soon become dry on account of the great amount of discharge present.

Treatment of Severe Vomiting in Infants.

Variot announces that he has been almost invariably successful in arresting apparently uncontrollable vomiting in breast-fed infants, by the use of sodium citrate, combined as follows:

℞. Sodii citratis.....gr. lxxv 5|
Syrupi simplicio .....℥ss 45|
Aquæ dest. .....℥viii 240|

M. Sig.: One tablespoonful just before the infant is given the breast.

Recent radioscopic researches have shown that the stomach in infants contracts, after the ingestion of milk, differently from the contraction in adults. In infants it contracts throughout its entire expanse, not merely in the pyloric region, leaving an almost round space in the center. This reflex contraction is more intense at some times and with certain milks than with others. The contact of certain milks, even breast milk, seems to induce hyperexcitability in the stomach mucosa, with intense reflex action and uncontrollable vomiting. It is probably sometimes erroneously attributed to spasm of the pylorus or to congenital stricture. This hyperexcitability is controlled by the sodium citrate, and even without changing the milk the vomiting is arrested within a day or so and the infant begins to thrive normally.

In cases rebellious to the sodium citrate, he feeds the child exclusively, in case a wet nurse is not obtainable, with ordinary sterilized milk, to which sodium citrate has been added.

In a communication to the Paris Société méd de Hôp. on July 6, he related a number of examples to prove the efficacy of the sodium citrate, although in conclusion he quoted an eminent chemist to the effect that probably that which is most important in the composition of milk is something of which we are still ignorant.

Simple Elixir as a Wrongly-Used Vehicle.

In an article read before the Penn. Pharmaceutical Assoc., as noted in the *Apothecary*, E. F. Heffner calls attention to the fact that not a few physicians prescribe the simple elixir and the medicinal elixirs of which it forms the basis, as vehicles, not knowing that they contain alcohol. Among these preparations may be mentioned elixir calisaya, elixir gentian, etc. He cites the following prescription for a child of four months as an example:

℞. Sodii bromidi .....gr. viii |50
Elix. simplicis .....℥i 30|

M. Sig.: One teaspoonful every half hour or one hour as needed.

No physician, as Heffner states, would give a child of four months a quarter of a teaspoonful of alcohol every half hour, yet that is the amount called for in the foregoing prescription, which is equal to half a teaspoonful of whisky or a teaspoonful of brandy.

Another example he gives as follows, for a child six years old:

℞. Kalii bromidi .....gr. xlviii 3|20
Elix. valerian ammon .....℥iv 15|
Elix. simplicis, q. s. ad.....℥iii 90|

M. Sig.: One or two teaspoonfuls in water every one to two hours as needed.

In this instance the child of six years would obtain with each two or four grains of bromid an equivalent strength of one-half or one whole teaspoonful of whisky, which would very effectively counteract the effect of the bromid. Another

instance he quotes of a combination prescribed by the physician as follows:

R. Sodii bromidi	3iv	15
Chloralis hydratis	3iv	15
Elix. simplicis, q. s. ad	3iv	120

M. Sig.: Two teaspoonfuls in water every half to one hour. On standing the foregoing will contain chloral alcoholate on top, consequently unless patients are particularly instructed to shake the bottle well they will receive the entire amount in two doses. He suggests the use of aromatic water or simple syrup instead of the simple elixir, in order to obviate danger.

Medicolegal

Reputability of College.

The Supreme Court of Wisconsin holds, in the case of State vs. Chittenden, that the meaning of the word "reputable" as used in the law regulating the practice of dentistry is, "worthy of good repute;" it relates to real character, not to mere reputation in that regard. Reputability, as the term is used in the dental law, relates to that which will enable the college to do good work and the actual accomplishment thereof; it is separate and distinct from other requisites as to a diploma being a passport to the favor of the official board as regards the issuance of a license. It may or may not exist, and all the other requisites be present. It is proper, in administering the law regulating the practice of dentistry, for the official board, of its own motion, or on petition of a college of which it has jurisdiction, to adjudicate its status as regards reputability. The adjudicated status of a college is presumed to continue till the presumption shall have been reasonably rebutted, under the general rule that "when the existence of a person, a personal relation or a state of things is once established by proof, the law presumes that the person, relation or state of things continues to exist as before until the contrary is shown, or until a different presumption is raised from the nature of the subject in question."

Death from Puerperal Septicemia One Arising from Pregnancy.

The Supreme Court of Indiana says that in Knights and Ladies of Columbia vs. Shoaf, an action on a benefit certificate, that the insured executed a release whereby she waived all benefit under the certificate in case of her death arising from pregnancy. It was conceded that she died of puerperal septicemia, but it was contended that this was not a death arising from pregnancy. It was said that her pregnancy was terminated naturally in childbirth, and subsequently a disease set in which produced her death. The court does not agree with the contention. It says that this disease (puerperal septicemia) is generically and inherently associated with parturition, and cannot exist in its absence. It is immaterial whether the disorder is incited by infection from without the subject, or whether it is autogeneric, it is always incidental to childbirth, and its terrors are as old as the human race. If the insured, apprehending danger from her condition, had secured insurance against death arising from pregnancy, the court thinks there could have been no reasonable ground for disputing liability for her death resulting from puerperal septicemia. The same rule of construction applied to the contract in suit, and not the strict doctrine in abhorrence of forfeitures. The undisputed evidence and admissions of the parties enabled the court to say that the death of the insured arose from her pregnancy, within the meaning of the contract of insurance.

No Recovery for Suicide of Patient at Hospital.

The First Appellate Division of the Supreme Court of New York says that the complaint in the case of Duncan vs. St. Luke's Hospital alleged, among other things, the removal of the plaintiff's wife to the hospital; that she became delirious, and was at times insane; that he contracted for a consideration of $7 a day to have a careful and continuous guard kept over her, and that at a time when there was no attendant in the room she jumped from the window of the hospital building and was killed by the fall on the pavement below. It was admitted that the case did not come within section 1902 of the New York Code of Civil Procedure, which provides that "the executor or administrator of a decedent, who has left him or her surviving, a husband, wife or next of kin, may maintain an action to recover damages for a wrongful act, neglect or default by which the decedent's death was caused, against a natural person who, or a corporation which, would have been liable to an action in favor of the decedent, by reason thereof if death had not ensued." But the plaintiff contended that his was an ordinary action for breach of contract; that this contract was entered into, having for its object the preservation of the wife of the plaintiff from injury, and there was a breach which resulted in her death; that this was a special contract, requiring the hospital to do more than its legal duty, for which it was paid a special price; and that, having broken its contract, it should pay the damages which naturally flowed from the breach and which might reasonably have been within the contemplation of the parties when the contract was made. The court, however, does not accept of the distinction sought to be made. Besides, it says that the contract was to keep a constant watch and guard. It was not to prevent the unfortunate patient from committing suicide. Nor could it fairly be held within the reasonable intendment of this contract that the hospital agreed to pay to the husband the value of his wife's life to him in case she did commit suicide. There was no case cited to the court, neither was it able to find one, allowing a recovery on such a complaint or such a state of facts. Nor can the court see any reason why there should be any difference in the rule where the tortious (wrongful) act which caused death is alleged to be a breach of an express contract than where it is alleged to be a breach of an implied contract or where no contractual relation at all existed. It is settled by innumerable cases that the right to recover for the death of a human being is a right solely given by statute, and as the plaintiff came not within the statute a judgment dismissing the complaint on the ground that it did not state facts sufficient to constitute a cause of action should be affirmed.

Proximate Cause of Death—Septicemia After Injury.

The Supreme Court of Wisconsin says, in the case of Cary vs. Preferred Accident Insurance Company of New York, an action on an accident policy, that the facts on which the jury based their finding of a special verdict that the death of the insured resulted proximately and solely from bodily injury caused solely by external, violent and accidental means, were, in effect, that he accidentally fell and sustained an abrasion of the skin on his right leg, which wound appeared somewhat red and inflamed on the second day; that on the eighth day a physician first saw the wound and then found the insured to be suffering from blood poisoning, and that two days thereafter he died. The evidence also showed that the abrasion of the skin furnished the portal of entrance through which bacterial infection entered his system and caused the septicemia which was the immediate cause of his death. It was urged that unless the evidence established the fact that the bacterial infection occurred at the time of the bodily injury by the fall it could not be found that his death was proximately and solely caused by the accident. But responsible causation, as applied in the law, is not dependent on time, distance or a mere succession of events. If an injury is inflicted by an event and it is found that it has set in motion all the succeeding agencies sharing in the result, then such event, as the efficient producing cause of the injury, is held to be the proximate cause of the injury. Under such circumstances the causal connection in the chain of events is shown by the dependence of each event for its action on the one preceding it, which thus form a continuous whole, with a proximate relationship established between the event which acted first through those naturally succeeding and the point of injury. Apply this test to the facts in this case and it is shown that no such bacterial infection would in all probability have occurred had there been no abrasion of the skin. This leads to the inevitable inference that the bacterial infection and the resultant septicemia were in the natural course of events dependent on and set in motion by the abrasion of the skin caused by the fall. The entry of bacteria into the system can not be considered as an inde-

pendent cause and as having intervened between the accidental fall and the death, because the fact that it was conditioned on the existence of the abrasion of the skin and was wholly incidental to and set in motion by it, thus making it one of the events in the chain of causation. The court is satisfied that the jury was well warranted in its conclusion that the death of the insured resulted proximately and solely from his accidental falling on the floor. As the infection which produced the septicemia could not be held to be the proximate cause of death, it did not come within the terms of a provision in the policy exempting the defendant from any liability for any injury "resulting from any poison or infection."

Current Medical Literature

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

Medical Record, New York.

August 4.

1 *Diagnostic Features of Surgical Diseases Attended with Acute Jaundice. A. A. Berg, New York.
2 *Therapeutic Action of Splenic Extract in Malarial Infections. C. H. Carpenter, Leavenworth, Kan.
3 *Tuberculin in the Treatment of Tuberculosis. G. R. Pogue, Canon City, Colo.
4 Pathology, Etiology and Treatment of Puerperal Eclampsia, with a Plea for the Kidneys. J. W. Winston, Norfolk, Va.
5 *Galvanic and Other Treatment of the Prostate. J. V. Shoemaker, Philadelphia.

1. Diagnosis of Surgical Diseases Attended with Jaundice.—Berg declares that although it is commonly considered that all cases of liver abscess are accompanied by jaundice, this view is not borne out in practice. The diagnosis of liver suppuration does not rest on the presence or absence of icterus. Cases of primary acute infectious cholangitis may be very difficult to diagnose. The pain in the epigastrium and right hypochondrium and the jaundice are more suggestive of gallstone disease, to which the cholangitis is secondary. The enlarged tender liver, increased leucocytosis and fever and chills, suggest miliary abscess of the liver. It may be helpful here to remember that in long-standing gallstone disease the gall bladder is most likely to be contracted and not palpable, while in primary acute, infectious cholangitis it is distended and enlarged. In cases in which because the stones do not leave the gall bladder there is pain, but no jaundice, the diagnosis is often very difficult. Gummata of the liver when they break down are sometimes accompanied by acutely developing jaundice. The writer gives the histories of a number of cases illustrating his different statements.

2. Splenic Extract in Malarial Infections.—Carpenter states that he has found splenic extract to be a real remedy for malarial infection. Being an organic preparation, it is necessary to take special care that it does not spoil either in the hands of the druggist or the patient. The best way to prescribe it, he states, is in the form of powder enclosed in capsules. Splenic extract produces the beneficial effects of quinin in malarial infections without any of its bad results. Carpenter cites the histories of 15 cases in which he has used splenic extract. Red bone marrow was given the preference as a hematinic. Its effects began soon after its administration, and the splenic extract which was before powerless to do its work immediately began to act. When administration of the splenic extract follows that of the red bone marrow the physiologic resistance or cure of the disease appears.

3. Tuberculin in Treatment of Tuberculosis.—Pogue, from a study of 167 cases, draws the following conclusions: An early diagnosis is the most important step to the successful treatment of tuberculosis. Tuberculosis may be arrested by proper treatment, with a fair certainty of a permanent cure. Tuberculin is a valuable adjuvant in the treatment of tuberculosis, as evidenced by the recovery of twenty-eight out of thirty patients who were treated with practically nothing but tuberculin, while they continued to follow their ordinary occupations during the treatment. Cases of tuberculosis treated with the addition of tuberculin showed far less tendency to recur than did similar cases treated without tuberculin. Tuberculin in small doses (.01 to .5 mg.) seems to have a more curative action than when given in large and increasing doses. No ill effects follow the administration of small doses of tuberculin. Purely incipient cases improve very rapidly under the use of small doses of tuberculin, both as to the arrest of the disease and the clearing up of the diseased area. Tuberculin should never be given a patient who has fever or who is suffering from mixed infection. Third-stage cases, especially advanced cases, receive little or no benefit from the use of tuberculin.

5. Galvanic Treatment of the Prostate.—In the treatment of hypertrophy of the prostate, Shoemaker has found that the galvanic current is of the greatest value, although he also employs constitutional means. An incidental advantage is that in all persons the flow of electricity in the rectum from the negative pole increases the caliber of the rectum and causes a simultaneous downpour of mucus. Sometimes these effects are followed at once by urgeney for defecation. This affords great relief from pressure on the congested and tender gland. The prostatic electrolyzer with a small wet battery has given instantaneous and great relief, he states, to may sufferers. A wet battery capable of producing thirty volts affords a margin for the range between the least sensitive and the most sensitive prostate. The author then reports the histories of a number of patients.

New York Medical Journal.

August 4.

6 *Modified Operation for Movable Kidney. J. C. Da Costa, Philadelphia.
7 Complications with Fracture of the Long Bones at the Wrist. V. Kenerson, Buffalo, N. Y.
8 *Carcinoma of the Stomach. J. D. Dunham, Columbus, Ohio.
9 *A Simple Device for Working Directly with Percentages in the Home Modification of Cow's Milk. M. F. Deming, Tappan, N. Y.
10 Surgical Significance of Jaundice. S. Lloyd, New York.
11 *Rational Treatment of Visceral Ptoses. J. M. Taylor, Philadelphia.
12 *Clinical Notes on a Recent Epidemic of Dengue Fever. A. Agramonte, Havana, Cuba.
13 *Intermittent Pentosuria and Glycosuria. D. M. Kaplan, New York.

6. Modified Operation for Movable Kidney.—After having tried various methods in order to overcome the objections urged against various operations for movable kidney, Da Costa hit on the following method: The incision is slightly oblique in order to enable the operator to remove the appendix if he so wishes; the exposure of the kidney is identical with the method of Senn. The kidney is brought out of the wound as advocated by Edebohls. The fatty capsule is cut away, and the fibrous capsule is either scraped with a needle and thoroughly rubbed with gauze, or, as in some cases seems preferable, is partially or completely removed by the operation of decapsulation. The iodoform gauze that is to be placed beneath the kidney as a sling is prepared beforehand. Da Costa prefers iodoform gauze for slings, as iodoform antagonizes putrefactive changes in wound fluids and seems to have an influence in stimulating granulation.

The ends of two pieces of iodoform gauze are sewed together with slender plain catgut, and thus a piece is prepared for the upper pole of the kidney. Two more pieces are sewed together in the same manner, and thus a piece is prepared for the lower pole. Therefore, instead of passing one long piece of iodoform gauze beneath a renal pole, and being obliged subsequently to pull a long end around under the kidney, when it is desired to remove the gauze, a sutured piece of gauze is put under a renal pole and, as the sutures are composed of catgut, they are quickly absorbed. In a few days the gauze is easily removed, and the suture line being directly under the kidney, there is only a short end to pull around on each side. The method of placing the gauze while the kidney is on the back is important. If operating on the right kidney the suture line of each piece of gauze is to be on the external surface. When the kidney is restored to its position, this means that the suture line will be on the anterior surface. After the two pieces of gauze have been placed around the kidney, that organ is restored to place and is pushed into its normal position; and in order to prevent its subsequent descent, a large

piece of iodoform gauze is packed beneath the lower pole, so as to fill the gap, or cavity, that exists there, and to stimulate granulation to fill it up. Another and a smaller piece of gauze is now pushed down on the posterior surface and sides of the kidney. The protruding ends of the gauze around the upper pole are tied together with a piece of silk; the ends of the gauze from around the lower pole are also tied together in the same way; and the bit of gauze on the posterior surface of the kidney, and the four polar ends of gauze are tied into one bunch with a piece of silk. The ends of all the pieces of gauze emerge a little way from the wound, and are subsequently identified with ease.

After the kidney has been restored to position and the gauze has been inserted, stitches of silkworm gut are passed and tied at the upper and lower ends of the wound, in order to close partially the muscular, fascial and cutaneous gap. Through the center of the wound sutures are inserted, but are left untied, and they are not to be tied until the gauze is removed. The usual dressing is applied to the loin; a folded towel is placed on the abdomen below the right lower ribs, and a firm binder is put in place. At the end of seven or eight days the gauze is removed. The method of removing the gauze is also described in detail.

8. **Carcinoma of Stomach.**—Dunham reports a case of carcinoma of the stomach occurring in a man, aged 52, which illustrates the benefit to be derived from the surgical treatment of this affection. Eighteen months after the operation (gastrectomy performed after the Mayo method, one inch of the duodenum being removed, and a posterior gastroenterostomy being done with the Robson bobbin) the patient is apparently in good health and his digestion is excellent. He has increased 30 pounds in weight. The tumor was of the encephaloid type and was situated near the pyloric orifice.

9. **Home Modification of Cow's Milk.**—In the device described by Deming, all the complications usually met in the home modification of cow's milk are eliminated by the application of a new principle, which is to graduate a measuring vessel to percentages of proteids and fat of cow's milk so that any desired percentage of proteid and fats may be obtained directly without the necessity of calculations or writing a food formula. Deming claims that any one of ordinary intelligence can put up the prescription in a few minutes from one quart of bottled milk with remarkably accurate results.

11. **Treatment of Visceral Ptoses.**—Taylor presents a few facts and opinions with a résumé of his own experience in the treatment of visceral ptoses.

12. **Dengue.**—Agramonte discusses the epidemic of dengue which occurred in Havana in the fall of 1905 and lays particular stress on the difficulty encountered in the diagnosis of dengue, especially during the first forty-eight or seventy-two hours, when it may readily be mistaken for yellow fever.

13. **Intermittent Pentosuria.**—Kaplan divides pentosuria into the following varieties: 1. Chronic pentosuria. This occurs when pentose is excreted in the urine constantly, and when a glycosuria can not be induced after the intake of one hundred grams of glucose. 2. Alimentary pentosuria. This occurs in individuals who can not oxidize large amounts of pentosans introduced with the food, excreting a portion of the pentosan as pentose; when the articles containing these pentosans are excluded from the dietary the pentose disappears from the urine. 3. Intermittent pentosuria. This occurs when the excretion of pentose takes place at more or less regular intervals uninfluenced by external conditions and when one hundred grams of glucose will not give rise to a glycosuria. 4. Intermittent pentosuria and glycosuria. When this condition occurs pentose is present in appreciable quantities, and glucose appears in the urine either independently or after the administration of one hundred grams of glucose.

Boston Medical and Surgical Journal.

August 2.

14 *Gastromesenteric Ileus. J. M. T. Finney, Baltimore.
15 *Spontaneous Rupture of Heart, with Report of a Case. W. H. Palmer, Providence, R. I.
16 *Spontaneous Rupture of Heart in a Case of Senile Dementia. H. W. Miller.

14. **Gastromesenteric Ileus.**—Finney reports a case of this kind occurring in a woman, aged 46, the clinical symptoms resembling those of acute dilatation of the stomach less the abdominal distension. The patient died 6 days after the operation.

15. **Spontaneous Rupture of Heart.**—Palmer's case was unique for several reasons. The patient was only 36 years old and the rupture occurred into the pleural cavity, probably being determined by the obliteration of the pericardial cavity through the formation of adhesions which existed over the greater surface of both auricles and ventricles. The case presented the physical signs and symptoms of aortic aneurism and was accompanied by symptoms of pressure on the left recurrent laryngeal nerve. The coronary arteries were in an advanced stage of arteritis, while the systemic vessels were normal.

16.—**Id.**—Miller's patient was a man, aged 83, whose heart ruptured spontaneously as a result of myomalacia cordis, the accident being determined by mental and physical excitement. The rupture occurred near the tip of the left ventricle. The coronary arteries showed well-advanced arteriosclerosis.

St. Louis Medical Review.

July 28.

17 Casts in the Urine, Their Origin and Significance. L. M. Warfield, St. Louis.
18 Surgery of the Biliary Tract. (Concluded.) M. H. Richardson, Boston.

Surgery, Gynecology and Obstetrics, Chicago.

July.

19 *Study of Infections of the Knee Joint and Their Treatment. D. P. Allen and E. Alden, Cleveland.
20 Mortality from Puerperal Infection. H. H. Powell, Cleveland.
21 Subcutaneous Injuries of Nerves. R. H. Birge, Cleveland.
22 *Subclavian Thrombophlebitis Following Abdominal Section. W. H. Weir, Cleveland.
23 Fracture of Carpal Scaphoid. H. A. Becker, Cleveland.
24 *Ureteral Symptoms in Gynecologic Cases. O. T. Thomas, Cleveland.
25 *Prophylactic Treatment of Puerperal Eclampsia. F. S. Clark, Cleveland.
26 Transverse or Oblique Presentations. J. J. Thomas, Cleveland.
27 Diagnosis and Surgical Treatment of Tuberculosis of the Kidney. William E. Lower, Cleveland.
28 Hebotomy (Publotomy). A. H. Bill, Cleveland.
29 *Pulmonary Complications Following Abdominal Operations. H. Robb and H. Dittrick, Cleveland.
30 Multiple Giant Celled Sarcoma. G. W. Crile and W. C. Hill, Cleveland.
31 Observations on Surgical Hemorrhage. G. Crile, Cleveland.
32 *Search After Truth. R. B. Maury, Memphis, Tenn.
33 *Vaginal Cesarean Section. Dr. Dührssen, Berlin, Germany.
34 *Manual Dilatation of the Cervix of the Gravid Uterus. P. A. Harris, Paterson, N. J.
35 *Shortening of Round Ligaments within Inguinal Canals Through Single Suprapubic Transverse or Median Longitudinal Incision. R. Peterson, Ann Arbor, Mich.
36 *Hypernephroma Renis. J. W. Bovée, Washington, D. C.
37 *Conservative Operations on Ovaries. J. M. Baldy, Philadelphia.
38 *Technic of Repair of Large Vesical Fistulæ. Wm. S. Stone, New York City.
39 *Thrombosis and Embolism Following Abdominal Operations. J. T. Johnson, Washington, D. C.
40 *Results of Vaginal Section and Drainage in Early Cases of Ectopic Gestation. W. E. Ford, Utica, N. Y.
41 *Review of Surgery of Female Pelvic Organs. B. C. Gordon, Portland, Maine.
42 *New and Improved Method of Closing Vesicovaginal Fistulæ. A. L. Smith, Montreal, Canada.
43 Anesthesia in First Stage of Labor. F. S. Newell, Boston.
44 *Enteroptosis. R. R. Smith, Grand Rapids, Mich.
45 *Facts and Figures of End Results in 100 Cases of Conservative Operations on Uterine Appendages. W. P. Manton, Detroit, Mich.
46 *Postoperative Embolism. E. Boise, Grand Rapids, Mich.
47 *Treatment of Traumatic Esophageal Stricture by Dilatation. F. E. Bunts, Cleveland.
48 *Technic of Tubation of Pharynx to Facilitate Administration of Anesthetics and to Prevent Inhalation of Blood in Mouth and Face Operations. J. H. McHenry, Cleveland.
49 Normal Saline Solution in Abdominal Operations. W. H. Humiston, Cleveland.

19. **Infections of Knee Joint.**—Allen and Alden state emphatically that the knee joint, when infected or inflamed, is not to be considered as a closed cavity to be left alone. Their experience has convinced them that it may be aspirated, injected or incised with safety, no accident having followed any of these procedures. The advantages of the radical method are certainty of diagnosis at an early period, and positive treatment at a time when it may prove efficacious.

22. **Subclavian Thrombophlebitis Following Abdominal Section.**—The condition described by Weir occurred in the case of a woman operated on for a ruptured ectopic gestation. She rallied well from the operation and two days later had an attack of pain in the region of the gall bladder, with transient icterus. Both rapidly subsided. Eight days after the operation she complained of pain in the left axilla and shoulder and in the supraclavicular fossa, with local induration and tenderness along the course of the axillary vein. The edema and tenderness extended throughout the arm and also involved the left side of the neck to the median line in the area drained by the subclavian vein. The severe pain requires morphin at times. The arm was elevated, lightly bandaged with abundant cotton and heat applied continuously. The condition gradually improved, and about six months after the operation the arm was almost perfectly recovered, although it tired rather easily.

24. **Ureteral Symptoms in Gynecologic Cases.**—In 75 per cent. of all multiparous women seen by Thomas, who complain of classic subjective symptoms of disease of the generative organs, and in at least 90 per cent. of nulliparous women, the pain and the tenderness during manipulation was located neither in the uterus, tubes, nor ovaries, but in the pelvic portion of the ureters. Injuries during childbirth, pressure by inflammations and tumors of nearby organs, extension of inflammations either from the kidney or bladder, injuries due to the passage of renal calculi, the almost universal hyperacidity and extreme concentration of the urine in the female, and a type of woman in which there is a peculiar susceptibility to inflammations of mucous membranes throughout the entire body are the chief exciting causes of changes in the ureters.

25. **Prophylactic Treatment of Puerperal Eclampsia.**—According to Clark, the first step in the prophylactic treatment of puerperal eclampsia is so to manage cases of pregnancy as to reduce to the smallest number possible the cases of toxemia. When in spite of watchfulness toxemia develops, the case should be treated vigorously at the beginning, going to an extreme with it, and only terminating the treatment as its results justify it. When labor begins, the urine should be examined as soon as possible and again during and after labor. Chloral should be given, beginning with the onset of labor and continued until danger is passed. If the symptoms are becoming more pronounced as labor advances, it should be terminated. If, at the close of labor, symptoms are present either of impending eclampsia or even of a remote chance of eclampsia, the case should be treated as if the convulsions had already occurred, in this way preventing the actual occurrence of many that will come if nothing is done.

29. **Pulmonary Complications Following Abdominal Operations.**—In order to obtain some idea of the frequency with which an inflammatory condition of the lungs may follow abdominal operations, Robb and Dittrick made an analysis of 1,007 consecutive abdominal sections. Of this number, 35, or 3.5 per cent., of the patients developed pulmonary complications. Only 4 of the 35 showed physical signs of lung involvement before operation. In three cases acute pulmonary tuberculosis was evident immediately after the operation. Out of the 35 patients, 5, or 14 per cent., died. In one case, bronchopneumonia, in the second general peritonitis, and in the third acute cardiac dilatation were the immediate causes. In the 2 other cases metastatic nodules from malignant growths in the pelvis were found in the lungs. These pulmonary complications after abdominal operations may originate in several ways, generally from an infection originating from the field of operation. Another cause is the effect of the anesthetic, either because of the administration of too great a quantity of the drug for too long a time, because of the inspiration of vomited or infected material, or because of injurious substances contained in an adulterated anesthetic. Exposure, either during or after the operation, to sudden or excessive changes of temperature is a third cause.

32, 33, 40. THE JOURNAL, June 23, 1906, p. 1966.

34, 39, 44, 46. THE JOURNAL, June 9, 1906, pp. 1789-1791.

35, 36, 37, 38, 41, 45. THE JOURNAL, June 30, 1906, p. 2017.

42. **New Method of Closing Vesicovaginal Fistulæ.**—Smith reports two cases in which he employed a method devised by him for the closure of vesicovaginal fistulæ. After careful disinfection of the vagina, the latter was incised across in front of the cervix and the bladder pushed off the uterus in the same way as in the first step in vaginal hysterectomy. The vagina was divided in the middle line and separated from the bladder, except where the two torn edges had become united to the fistula. In one of the cases cited, a long tear in the bladder was then caught with a catgut stitch at either end, only taking in the muscular wall. When this was finished, there was a strong ridge on the site of the tear nearly a quarter of an inch wide, which was tested with sterilized milk injected into the bladder by a fountain four feet high. Care was taken not to allow the line of sutures of the vagina to come opposite the line of sutures in the bladder. This was avoided in the following manner: The slit in the vagina was closed with interrupted silkworm gut passed through one side of the vagina, then through the muscular wall of the bladder, but half an inch to the right of the tear in the latter, and then through the other side of the vagina, thus displacing the bladder half an inch to the patient's left, so that the line of suture in the two membranes was no longer in the same place that the line of the tear has been. By this means the line of suture in the bladder was backed up or strengthened in front by half an inch of solid vagina instead of a line of sutures, and should any pressure accidentally be brought to bear on the sutures in the bladder, it would have to overcome a valve instead of a hole, so that the harder it pressed the tighter would the valve close.

By this method, no stitches are allowed to enter the bladder, thus avoiding the danger of forming the nucleus for a calculus, and instead of depending on the union of a narrow ridge about the thirty-second of an inch thick, there is obtained a thick ridge fully an eighth of an inch thick in the bladder alone, to say nothing of the thickness of the vagina in front of it. In these cases a catheter should always be left in the bladder, as it removes all tension and places the bladder at complete rest so long as it remains in.

47. **Dilatation of Traumatic Esophageal Stricture.**—Bunts alludes to a series of nine cases of stricture of the esophagus all following the drinking of lye. Some of the patients were children, some adults, and in all the stricture was a very small one, so that in most of them the passage of even a filiform bougie was accomplished after several days of patient effort, and in several, total inability to swallow water was present. Finding it impossible to get esophageal bougies small enough for these strictures, Bunts had made a series of graded double-bulb, olive-shaped bougies, which he employed with much satisfaction. On each staff there are two bulbs, the first being one size of the French scale smaller than the second bulb. This serves to permit one to follow up the advantage gained by passing one bulb, by the immediate passage of one a size larger. Another advantage is that the passage of the first bulb is followed by a free passage of the intervening portion of the bougie until the second bulb is engaged in the stricture, making one feel safer in applying a moderate degree of pressure in pushing this one through. In children it is necessary to use a mouth gag, not so in adults. After securing a free dilatation of the esophagus, the patient may be furnished with a bougie for his own use, and by passing it once in a month or more all danger of return of the stricture is obviated. On inserting the bougie it is best to have the patient sit upright with the head thrown back somewhat. The bougie is best passed into the pyriform sinus at the side of the larynx, which affords a funnel-like aperture that will allow the bougie to slide into the esophagus without encountering the bodies of the cervical vertebræ or the cricoid cartilage.

48. **Tubation of Pharynx to Facilitate Anesthesia.**—In this article McHenry redescribes a method devised by Crile and described by him in 1903. (*Annals of Surgery*, xxxvii, p. 859.)

The Mobile Medical and Surgical Journal.
July.

50 Selected Case Reports of Abdominal Operations. W. M. Jordan, Birmingham, Ala.
51 Atony of the Stomach. S. Harris, Mobile, Ala.
52 Mental Attitude of Physician Toward Tuberculous Patient. J. S. McLester, Birmingham, Ala.
53 *Smallpox, as Observed in Alabama in Recent Years. S. C. Henderson, Brewton, Ala.
54 Society, Inebriates and Moral Perverts. R. J. Hargrove, Tuscaloosa, Ala.

53. Smallpox in Alabama.—Henderson refers to the mild form of smallpox with which he has come in contact in his capacity of County Health Officer in the past few years. He says that the period of incubation, the period of invasion, and all other manifestations are the same, except as to the severity of all symptoms. The constitutional symptoms are usually exceedingly mild. The mucous membrane is rarely affected, or if so, to a very mild degree, and the sufferings of the patient are so insignificant that many of them would not remain indoors unless compelled to do so. Henderson ascribes this to vaccination, and he agrees with others that the only practical and possible method of controlling the spread of smallpox is by vaccination, and that this to be efficient must be universal. He urges the enactment of laws making vaccination compulsory, and that the operation of vaccination should by law be entrusted only to those who are competent to perform it properly.

Northwest Medicine, Seattle, Wash.
July.

55 Disease of Gall Bladder and Ducts, with Reference to Stomach Troubles, Indigestion and Dyspepsia. G. M. Horton, Seattle, Wash.
56 Diagnosis of Gallstone Disease in Its Early Stages. C. W. Sharples, Seattle, Wash.
57 Commonly Overlooked or Misleading Symptoms of Gallstone Diseases. C. B. Ford, Seattle, Wash.
58 Clinical History and Diagnosis of Gallstone in the Gall Bladder, the Cystic or the Common Duct. N. J. Redpath, Olympia, Wash.
59 Relations of Pancreatitis to Cholelithiasis, with Report of a Case. N. F. Essig, Spokane, Wash.
60 *Unusual Case of Intestinal Obstruction. R. E. McKechnie, Vancouver, B. C.

60. Unusual Case of Intestinal Obstruction.—McKechnie reports the case of a woman who complained of obstinate constipation, vomiting and colicky pains that had lasted for several days, although large doses of physic had been given. The pain was about the umbilicus, the abdomen flaccid, tenderness on pressure a little below and to the left of the umbilicus; no sign of tumor. Repeated enemata, high and low, were tried, combined with the use of purgatives, but were ineffectual. The condition remaining the same, McKechnie operated. He found about a quart a serous fluid in the abdomen, slightly yellowish in color, and with no odor. There was no sign of peritonitis or disease of the gall bladder or appendix. Examination of the bowel showed that everything was normal, except about thirty inches of the jejunum, situated three feet from its upper end. The affected portion was an inch and a quarter in diameter, of uniform caliber, tapering off at either end into the normal contracted bowel without any sharp line of demarcation. The walls were double the thickness of the normal, were toneless, and apparently edematous. The color suggested edema, not congestion, so that the obstruction in this case was due to a paralysis of that portion of the bowel. Owing to the condition of the patient nothing further was done except to close up the abdomen. Opium and belladonna were given in suppositories and nutritive and saline enemata were also administered. The patient died on the third day from heart failure. At the postmortem the affected segment of bowel was found in apparently the same condition, no sign of gangrene, no more effusion, and no sign of peritonitis.

The Therapeutic Gazette, Detroit.
July 15.

61 *Treatment of Infantile Diarrhea. E. E. Graham, Philadelphia.
62 Cause and Treatment of Summer Diarrhea in Infants. J. P. C. Griffith, Philadelphia.
63 Remarks on Prevention and Treatment of Summer Diarrhea in Children. W. C. Holloperter, Philadelphia.
64 Prophylaxis and Treatment of Infantile Diarrhea in Summer. T. S. Southworth, New York.
65 Dietetic Treatment of Summer Diarrheas of Infants. T. S. Westcott, Philadelphia.

61. Treatment of Infantile Diarrhea.—When the diarrhea is due to a toxemia Graham begins treatment with castor oil, or, if much vomiting is present, fractional doses of calomel, one-sixth grain every hour until one grain is given. In mild cases boiled water given by the mouth usually rapidly cleanses the stomach by being vomited; if vomiting persists, lavage must be resorted to. Irrigation of the colon is of advantage in every case. It should be done every twelve hours with a gallon of normal salt solution, at a temperature of about 100 F. Strychnin, 1/200 of a grain, repeated in three hours, is of advantage in the worst cases. Hypodermoclysis, eight ounces of sterile salt solution, repeated in twelve hours, is also beneficial in tiding the desperate case over a critical period. High temperatures are controlled by ice water enemata, one pint being used. Whisky, opium in the form of morphin or paregoric, may be given as indicated. Subnitrate of bismuth, in mucilage of acacia and peppermint water, is excellent, he states, in controlling the diarrhea.

When this is due to inflammation of the intestinal mucosa, hygienic and dietetic treatment are indicated. It is important to supervise the child's diet for a long while after convalescence is apparently established. Castor oil or calomel should be given in sufficient doses to sweep out the food and decomposed material thoroughly from the gastrointestinal tract. Rectal irrigation with normal salt solution is of benefit in almost every case. Subnitrate of bismuth, in ten grain doses, every two hours, should oe given continuously during the entire course of the disease. If tenesmus is present, laudanum, four drops in four ounces of starch water, may be used as an enema. Stimulants will be required in the majority of cases. Opium is required in all but the mildest cases.

The Laryngoscope, St. Louis.
June.

66 Indications for Surgical Interference in Disease of Faucial Tonsils and Methods of Choice in Operating. An Analysis of 480 Cases. W. E. Casselberry, Chicago.
67 Affections of the Lips, Mouth and Tongue, as Seen by the Dermatologist. W. S. Gotthelf, New York.
68 Acute Osteomyelitis of Temporal Bone; with Report of Cases. W. R. Dabney, Marietta, Ohio.
69 Contribution to Technic of Submucous Septal Operation. J. McCoy, New York City.
70 *Cases of Submucous Resection of Septum, with Conclusions Drawn from Same. W. W. Carter, New York City.
71 Indications for Operative Interference in Mastoiditis Associated with Acute Suppurative Otitis Media. T. M. Hardie, Chicago.
72 Anesthesia in Tonsil and Adenoid Operations. L. C. Cline, Indianapolis.
73 Sarcoma of Both Faucial Tonsils. C. D. Conkey, Superior, Wis.

70. Submucous Resection of the Septum.—All Carter's patients were males, varying in age from 10 to 57 years. Deviation in 24 cases was to the left; in 15 cases it was to the right; in 6 cases it was sigmoid, both sides being obstructed. In one case the anterior edge of the vomer consisted of two plates with an interval between. In two cases the cartilaginous septum was either calcified or ossified. In several cases there was distinct bulging on the side of the nose corresponding to the defection. In all but two cases it was necessary to remove some bone. The immediate results in all the cases were very satisfactory, the symptoms caused by the deflection being entirely relieved. There was one perforation. In all the cases the first good results have been maintained. In most of the cases no operative scar is easily discoverable.

The Laryngoscope, St. Louis.
July.

74 Diabetes and Bright's Disease in Relation to Suppurative Osteomyelitis of Mastoid. Polyuria a Symptom of Meningeal Irritation. T. Hubbard, Toledo, Ohio.
75 Some Affections of Lips, Mouth and Tongue, as Seen by the Dermatologist. W. S. Gotthelf, New York.
76 *Proposed Operative Measure for Thrombosis of Cavernous Sinus. H. G. Langworthy, Dubuque, Iowa.
77 Case of Maxillary or Dental Cyst. "Hydrops Antri Highmori." G. E. Shambaugh, Chicago.
78 Demonstration of Suction Method in Diagnosing Sinus Disease. F. E. Brawley, Chicago.
79 Membranous Rhinitis (Non-Diphtheritic). C. M. Robertson, Chicago.
80 Cancer of Larynx: Laryngofissure. G. Klaer, Copenhagen, Denmark.
81 Some Cases of Maxillary Sinus Empyema Treated Intranasally. H. H. Curtis, New York.

82 Epithelioma of Antrum of Highmore. R. H. Johnston, Baltimore.
83 Clinical Report on Use of Alypin as a Local Anesthetic. W. C. Phillips, New York.
84 Large Fibroadenoma of Nasal Fossa. R. H. Johnston, Baltimore.
85 Case of Serous Meningitis Mistaken for Brain Abscess. Operation. Recovery. L. Emerson, Orange, N. J.
86 Case of So-called Laryngeal Vertigo (Bronchial Syncope). C. J. Whalen, Chicago.
87 Pharyngeal Fistula, Congenital. G. Worstell, Knoxville, Iowa.
88 Labyrinthitis in Secondary Stage of Syphilis. G. L. Renaud, Detroit.

76. Operative Treatment of Thrombosis of Cavernous Sinus.—After elongating the usual frontal sinus incision downward along the nasal bone and retracting the eye out of the field, Langworthy removes the inner wall of the orbit over a considerable area together with the nasal bone on that side. The entire structures within the nasal fossa, ethmoid labyrinth and turbinates, are then curetted out. This at once brings him down on the anterior surface of the body of the sphenoid, with the opening of the sphenoidal sinus in plain view. The anterior wall of the sphenoidal sinus is next to follow, and also the external or lateral wall against which rests the cavernous sinus. If unsuccessful in opening the cavernous sinus, the external wound is easily closed, the eye remains uninjured, and nothing is lost by the attempt.

The Medical Fortnightly, St. Louis.
July 25.

89 Treatment of the More Common Secondary Symptoms of Diabetes. A. C. Croftan, Chicago.
90 The Atypical, the Indefinite. J. R. Landers, Bernadotte, Ill.
91 Sequel to the "Wholesale Poisoning" Scare. R. G. Eccles, Brooklyn, N. Y.

The Journal of the South Carolina Medical Association, Greenville, S. C.
July 21.

92 Simplification of Difficult Hysteromyomectomy. L. Peters, Columbia, S. C.
93 Obstructions in the Upper Respiratory Tract. H. H. Briggs, Asheville, N. C.
94 Use of Antitoxin in Treatment of Diphtheria. J. J. Watson, Columbia, S. C.
95 Polypharmacy. J. A. Faison, Bennetsville, S. C.

Denver Medical Times and Utah Medical Journal.
July.

96 Case of Sphenoidal Sinus Disease. F. G. Buchanan, Denver.
97 Case of Eclampsia Ending Fatally. M. Hawes, Denver.
98 Diabetes Mellitus in an Infant. E. Lawney, Denver.
99 A Right "Posterior Ilium." M. E. Bates, Denver.
100 Aortic Insufficiency, Appendicitis. T. S. Fantz, Denver.
101 Laboratory Diagnosis for the Practitioner. J. C. Todd, Denver.
102 Vomiting. (Continued.) D. S. Neuman, Denver.
103 A Plea for the Doctor of Internal Medicine. H. A. Castle, Pocatello, Idaho.
104 *Spotted Fever. H. N. Mayo, Salt Lake City.

104. This article appeared in THE JOURNAL, July 7, 1906, p. 36.

Southern California Practitioner, Los Angeles.
July.

105 Science, Religion and the Physician. T. J. Conaty, Los Angeles.
106 Lues as a Factor in General Practice. G. L. Cole, Los Angeles.
107 History of Stomach Surgery. J. DeB. Shorb, Los Angeles.
108 Induction of Labor. P. A. Adams, Los Angeles.
109 *Economy in Producing and Marketing Certified Milk. J. Roby, Rochester, N. Y.
110 The Water and Milk Supplies of Los Angeles. E. L. Leonard, Los Angeles.

109. This is modified from an article by Dr. Roby, which appeared in THE JOURNAL, May 12, p. 1430.

Annals of Gynecology and Pediatry, Boston.
July.

111 The Treatment of Suppurative Conditions in the Abdominal Cavity, General and Local. J. Douglas, New York.

The Journal of Medical Research, Boston.
July.

112 Studies in Absorption. B. H. Buxton and J. C. Torrey, New York.
113 Microscopic Evidences of Absorption in the Large Intestine. J. L. Bremer, Boston.
114 Two Modifications of the Leishman Stain. R. C. Whitman.
115 Regenerative Changes in the Liver: A Study of Experimental Lesions in the Dog. R. M. Pearce, Albany.
116 Simple Way of Using Buchner's Method for the Cultivation of Anaërobic Bacteria. H. J. Nichols and F. Schmitter, Washington, D. C.
117 Trypanosomata and Trypanosomiasis. E. N. Tobey, Boston.
118 Trypanosomiasis of the Newt. E. N. Tobey, Boston.
119 Relation of Autolysis to the Histologic Changes Occurring in Necrotic Areas. H. G. Wells, Chicago.
120 Case of Blastomycosis; Results of Culture and Inoculation Experiments. J. T. Bowen and S. B. Wolbach, Boston.
121 A New Toxic Action of Horse Serum. M. J. Rosenau and J. F. Anderson, Washington, D. C.

Colorado Medicine, Denver.
July.

122 Retinal Hemorrhages in Apparently Healthy Eyes. E. W. Stevens, Denver.
123 Tuberculous Meningitis. S. D. Hopkins, Denver.
124 A Case of Purulent Pericarditis. F. P. Gengenbach, Denver.
125 How the Medical Profession Can Aid in the Perfecting of Hospital Management. M. Collins, Denver.
126 Two Cases of Compound Fracture of the Vault with Loss of Brain Substance: Recovery. M. Kahn, Leadville, Colo.

The Kansas City Medical Record.
July.

127 How to Manage Otorrhea. F. E. Burgevin, Spiro, I. T.
128 Mucous Plagues; Prophylaxis and Treatment. E. H. Skinner, St. Louis, Mo.
129 Foreign Bodies in the Cornea and Conjunctiva. A. R. Baker, Cleveland, Ohio.
130 A Useful Antiperiodic Compound. J. A. Burnett, Dean Springs, Ark.
131 Emergencies in Internal Medicine—Treatment. J. H. Utley, Los Angeles.

Iowa Medical Journal, Des Moines.
July 15.

132 President's Address Before the Iowa State Medical Society. W. Jepson, Sioux City.
133 The Art of Medicine. E. Hornibrook, Cherokee.
134 Carcinoma. J. P. Crawford, Davenport.
135 Restoration of Nasal Contour, External and Internal. D. H. Lewis, Ottumwa.
136 Medical and Surgical Progress. G. Cullen, Des Moines.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London.
July 21.

1 *Some Points in Uterine and Ovarian Physiology and Pathology in Rabbits. C. J. Bond.
2 Vertigo. W. R. Gowers.
3 Effect of Bodily Exertion on the Opsonic Index of Healthy Persons. G. G. Ellett.
4 *Large Calculus of Ureter Removed by Suprapubic Cystotomy. R. Parker.
5 Pulmonary Tuberculosis in Children. J. E. Squire.
6 *Case of Actinomycosis of Abdominal Wall. A. Cuff.
7 *Value of Calcium Iodid in Treatment of Ulcers. G. A. Stephens.

1. **Points in Uterine and Ovarian Physiology.**—Bond investigated the effect of the removal of the uterine cornu on the ovary of the same side, and also the effect of the removal of the whole uterus on ovarian growth and function. He also inquired into the nature of and the conditions governing the secretion of a peculiar saline fluid by the endometrium and the mucous membrane of the Fallopian tubes, and the influence this secretion exercises when retained under pressure and absorbed into the circulation on estrus ovulation, pregnancy and the formation of lutein tissue. He also attempted to ascertain by experiments some of the conditions under which abdominal pregnancy and abdominal abortion occur in the rabbit. His conclusions are as follows:

1. The presence of functionally active ovarian tissue is necessary for the uterine function, or that portion of it which is concerned with the preparation by the endometrium of a suitable nidus for the imbedding of fertilized ova. 2. The presence of the uterine or endometrium tissue is not, on the other hand, necessary for the carrying on of ovarian function, either ovulation or the production of the internal secretion associated with estrus. 3. One function of the endometrium in the anestrous state is the secretion of a saline, watery fluid of low specific gravity, containing a large amount of chlorid of sodium in solution. 4. There is some antagonism between this endometric function or saline secretion and that portion of the internal secretion of the ovary which is specially concerned in producing pro-estrous changes in the endometrium

preparatory to the imbedding of fertilized ova. That portion of the internal secretion of the ovary which is, in fact, associated with the growth of corpora lutea. Thus the saline uterine secretion is associated with katabolic, the ovarian secretion with anabolic, changes. 5. The mechanism by means of which the ovary obtains its stimulus from the stimulated endometrium consequent on the occurrence of pregnancy is a circulatory and not a nervous mechanism. In all probability some substance is manufactured by endometrium or by trophoblast, or by both, which reaches the ovary by way of the blood stream, and is also concerned with the increased activity in the mammary glands. 6. The bilateral and bicorned uterus in the rabbit may be regarded as one gland so far as that function of the endometrium is concerned, which is associated with the preparation of a suitable nidus for fertilized ova. 7. The bilateral ovaries may also be regarded as one gland so far as the functions of ovulation and production of internal secretion are concerned. 8. After removal of one portion or half of this gland, the remaining portion is capable, under certain conditions, of undergoing a process of compensatory hypertrophy. 9. These necessary conditions in the rabbit are (a) the presence of the stimulus—namely, copulation—which in this animal normally determines ovulation, or (b) the stimulus of pregnancy. Under normal conditions these two stimuli occur together. 10. These hypertrophic changes in the ovary after unilateral oöphorectomy structurally resemble those changes which normally occur in the ovaries during pregnancy in its early stages. 11. After unilateral oöphorectomy, together with hysterectomy in the rabbit, the hypertrophhic stimulus is supplied by repeated copulation. 12. The prevention by previous hysterectomy of the secretion of the saline fluid by the endometrium of the anestrous uterus favors the overgrowth in the ovary of lutein tissue.

The facts now established are: 1. The endometrium has a secretion peculiar to the anestrous state. 2. There is evidence that some substance is elaborated by the pregnant uterus which stimulates the growth of corpora lutea in transplanted ovaries. Bond declares that we must, therefore, reconsider this matter and suggests that the ovary elaborates only one internal secretion having an influence on the uterus of an anabolic character, which at recurring intervals increases in amount and produces the phenomenon of pro-estrus and estrus.

4. Large Calculus of Ureter.—The calculus removed by Parker weighed a little over three-fourths of an ounce, and presumably was of the oxalate of lime variety. A striking peculiarity of the case related was that there were no urinary symptoms at any time. The inconvenience suffered was referred entirely to the rectum, through which the stone was originally felt.

6. Actinomycosis of Abdominal Wall.—The involvement of the abdominal wall in the case reported by Cuff was in the form of a tumor which involved the transversalis and peritoneum and slightly the internal oblique. The tumor was closely attached everywhere to the ascending colon. Cuff assumes that a piece of infected straw bearing spores of the ray fungus was swallowed by the patient; the small particle perforated the colon and entered the abdominal wall, setting up the disease there and leaving as evidence of its passage adhesions between the bowel and the abdominal wall. The tumor was removed and convalescence was uneventful.

7. Calcium Iodid in Ulcers.—The good effect produced by calcium chlorid in the treatment of acute ulcers led Stephens to try calcium iodid, and he says that the effect in reducing thick callous edges of chronic ulcers into thin healing ones was little less than miraculous. One or two of his patients found great difficulty in taking potassium iodid, but the calcium iodid agreed excellently, and the result was invariably good as regards smell, discharge and pain.

The Lancet, London.

July 21.

8 Notification of Pulmonary Phthisis. R. Sinclair.
9 X-Ray Shadows of Cystic and Xanthic Oxid Calculi. H. Morris.
10 Some Social Factors in the Causation of Infantile Mortality. T. Divine.
11 *Influence of Excessive Meat Diet on Growth and Nutrition. D. C. Watson.
12 Outbreak of Pneumonia in a Reformatory School. T. Oliver.
13 *Radical Cure of Femoral Hernia. A. Baldwin.
14 *Cessation of Pulse During Onset of Epileptic Fits A. E. Russell.
15 Two Cases of Amputation of Shoulder Girdle. J. C. Renton.
16 Operative Treatment of Laryngeal Papillomata in Children. D. R. Paterson.
17 *Case of Congenital Abnormality of the Genitourinary Organs. G. F. D. Smith and A. L. H. Smith.
18 Macroscopic and Chemical Observations in a Case of Scleroma Neonatorum. G. Carpenter and S. Neave.
19 *Case of Actinomycosis. E. Trevithick.

11. Influence of Excessive Meat Diet on Metabolism.—Watson made an extensive series of observations on the influence of a meat diet on the growth and general nutrition and the structure and functions of the organs of a large number of animals. The experiments proved that the excessive use of a meat diet in rats retards the growth and that sterility is induced if the diet is commenced in very early life. The power of lactation is diminished. A permanent weakening of the resisting power of the animals is induced, and they succumb to disease at an unusually early age. Furthermore, there is a high death rate in the offspring of animals fed on an excessive meat diet. Clinical experience leads him to think that we have here also a close parallel in diseases in the human subject, and more especially in the class of affections commonly included under the terms gout and goutiness.

13. Radical Cure of Femoral Hernia.—For some years past Baldwin has been practicing the following operation for the cure of femoral hernia, with a uniformly successful result. He has performed the operation about twenty times; all the wounds healed by first intention and caused no trouble whatever. The method of operation is described as follows: A curved incision about 1½ or 2 inches long is made over the saphenous opening. The sac is isolated and more or less cleared of fat. If not already back, the hernia is reduced. A slightly curved hernia director is now introduced up the crural canal in front of the sac and when its point is behind Poupart's ligament it is moved laterally so as for a short distance to strip off the peritoneum from the posterior surface of the transversalis fascia. The point of the director is now pushed farther upward and tilted forward so as to make the aponeurosis of the external oblique muscle project about half an inch above Poupart's ligament. A small transverse incision is then made through the aponeurosis, parallel to its fibers, on to the point of the director, which is now pushed up through the opening. The latter is only just large enough to allow of this being done. A sinus forceps, Spencer Wells forceps, or small nasal polypus forceps—the last, being slightly curved, is more convenient—is now introduced through the opening, passed behind Poupart's ligament, and made to project from the saphenous opening; as this is done the director is withdrawn; in its descent it guides the forceps and prevents it from catching. The fundus of the sac is now seized by the forceps, which is completely withdrawn, dragging the sac out through the opening in the external oblique aponeurosis. The sac is pulled out as much as possible and ligated at the top of its neck. By this maneuver no pouch is left in which recurrence may take place. A suture is then passed through the fundus of the sac, the suture is drawn through to its middle and then tied, thus leaving two free ends of equal length, or this may be done before the sac is pulled up through the opening in Poupart's ligament, the thread being seized by the forceps and used to pull up the sac. If the sac is large, however, the thread may tear out and time be lost. One end is threaded in a strong curved needle, one which will not rotate in the forceps which grasps it. The needle is now passed backward and forward through the sac several times, starting at the fundus and finishing at the neck, as described by Macewen, for puckering the sac. The needle is grasped in forceps, or a needle on a handle may be used, and its point is passed through the hole above Poupart's ligament, through the neck of the sac, down to the transverse ramus of the pubes, then by a turn of the wrist the point is made to slide forward across the pubic bone, as close to it as possible, then to pierce the pectineus muscle and to appear through the inner part of the saphenous opening. The needle is pulled through, bringing its thread with it. By drawing on the thread and by tucking the sac back again through the hole above Poupart's ligament by means of a stout

probe or similar blunt instrument, the sac disappears from view and comes to rest in a puckered-up condition behind the transversalis fascia and at the top of the crural canal, which it effectually roofs in. By this time the other end of the thread is hanging out of the opening above Poupart's ligament. It is tied rather firmly, but not too tightly, to the thread which projects from the saphenous opening; this fixes the sac in its place, and fixes Poupart's ligament to the pectineus muscle, so obliterating the crural canal. If necessary, a second suture may be put in for this purpose, but nearer the pubic spine. A suture is put in to close the hole above Poupart's ligament and the skin incision is closed. Thus there are three distinct checks against the recurrence of the hernia: (1) The sac is ligatured higher up than is possible by the ordinary method and leaves no peritoneal pouch; (2), the sac is used as a buffer or roof above the crural canal; and, (3), Poupart's ligament is approximated to the pectineus muscle and obliterates the crural canal. It may be urged that the sac will slough and cause trouble. This does not take place. It no doubt becomes vascularized, converted into granulation tissue, and ultimately into fibrous tissue.

In strangulated hernia, when it has seemed safe to leave the sac, and when time was precious, the author has modified the operation by pushing the sac up through the canal, after having made a little space for it as before, and then sutured Poupart's ligament to the pectineus muscle.

14. Cessation of Pulse During Epileptic Fits.—Russell points out that cardiac arrest does occur in some cases of epilepsy and suggests that it is far commoner than is suspected.

17. Congenital Abnormality of the Genitourinary Organs.—The diagnosis in the case recorded by the Smiths seemed to lie between inversion of the whole bladder wall, inversion of the mucous membrane of the bladder, and prolapse of the ureteric cyst, together with part of the bladder. At the necropay it was apparent that this was a case of a dilated accessory ureter, either with a blind cystic ending in the bladder wall, or with ballooning of its lower end, due to congenital narrowing of its orifice.

19. Actinomycosis.—Trevithick reports a case of actinomycosis in a boy, aged 16, which manifested itself as a primary abscess of the left lung, exhibiting a spontaneous cure, and later a metastatic manifestation in the pelvis, declaring itself after a year's latency, with abscess formation and a slow spontaneous cure.

The Journal of Tropical Medicine, London.

July 16.

20 *Verruga Peruana. M. D. Eder.
21 Habits of Ornithodoros Moubata. F. C. Wellman.
22 Clinical Picture of Relapsing Fever. V. G. Desal.
23 Anatomy of Biting Flies of Genera Stomoxys and Glossina. G. M. Giles.

20. Verruga Peruana.—Under this name Eder describes yaws as occurring in a district in Peru where typhoid is endemic. The two conditions are often found in the same patient. The causal agent of verruga is unknown.

Journal of the Royal Army Medical Corps, London.

July.

24 Reports of Commission for Investigation of Mediterranean Fever. (Continued.) E. A. Shaw.
25 Examination of Blood to Determine if Other than Mediterranean Fever Sera Would Agglutinate the M. Melitensis. P. W. Bassett-Smith.
26 Management and Use of X-Ray Apparatus. (Continued.) F. Bruce.
27 South African Stock Diseases. D. Bruce.
28 Mutual Mobility Between Skin and Deeper Structures and Its Relation to Bullet Wounds. G. L. Cheatle.
29 Date of Appearance and Duration of Bacillus Pestis in Peripheral Blood in Cases of Bubonic Plague in India. E. D. W. Greig.
30 Flies for Indian Service for all Ranks of the Corps. W. Tibbits.
31 Preparation of a Satisfactory Mercurial Cream for Intramuscular Injection. C. A. Hill.
32 Systematic Treatment of Malaria Among European Troops. W. E. Hudleston.
33 Preservation of Health Among the Personnel of the Japanese Army. Takaki.
34 Memorandum Regarding Antityphoid Inoculation. W. S. Harrison.
35 Dosage of Metallic Mercury in Intramuscular Treatment of Syphilis. F. J. Lambkin.

Presse Médicale, Paris.

36 (XIV, No. 53.) Sound Typhoid Bacilli Carriers.—Le bacille d'Eberth dans l'intestin des sujets sains. Conséquences cliniques et épidémiologiques. P. Remlinger.
37 La sécrétion interne du testicule dans l'ectopie de cet organe. R. de Gaulejac.
38 Une bonne formule d'apéritif. A. Martinet.

Revue de Médecine, Paris.

39 (XXVI, No. 5.) La légende de l'immunité des arabes syphilitiques relativement à la paralysie générale. Marie.
40 Perforations du septum interauriculaire. Leurs conséquences pathologiques et leurs variétés. Bériel.
41 Note sur l'épilepsie massive. C. Féré.
42 De l'existence de la fièvre méditerranéenne en Tunisie. Cathoire.
43 Vertige par lésion du rhino-pharynx (symphyses salpingo-pharyngiennes). Roque and Royet.
44 *Ostéomalacie et goitre exophthalmique. G. Tolot and F. Sarvonat.
45 (No. 6.) *La dengue en 1904 et en 1902. H. de Brun (Beyrouth).
46 *Une variété nouvelle de myoclonie congénitale, pouvant être héréditaire et familiale, à nystagmus constant (Nystagmus-myoclonie). E. Lenoble and E. Aubineau.
47 Traitement de la fièvre hémoglobinurique bilieuse. S. J. Kanellis (Athens).
48 Hypertension et bains carbogazeux (carbonated baths). J. Heitz.

44. Is Osteomalacia a Thyroid Affection?—Tolot and Sarvónat describe the case of a woman of 52 who had exhibited symptoms of mild exophthalmic goiter from childhood. During the last few months evidences of osteomalacia became apparent. In looking over the literature they found records of 11 cases of osteomalacia accompanying exophthalmic goiter. In the regions in Europe where goiter is endemic, osteomalacia is endemic likewise.

45. Dengue in Syria.—De Brun remarks that dengue epidemics have special characteristics. In one epidemic there will be eruptions in nearly every case, in another there will be no cutaneous manifestations. In one the disease will be very mild, in others it will simulate severe typhus, and so on. In a recent epidemic 26 cases developed in 11 days; the onset was sudden and severe, the fever reaching its maximum, 40 C. or thereabouts, at one swoop, and dropping to below normal on the third day. A peculiar painfulness of the ocular muscles seems to be pathognomonic of dengue, he states. In another epidemic the fever kept at about 40 C. for thirteen days and then dropped abruptly.

46. Congenital Myoclonus with Nystagmus.—Lenoble and Aubineau report 25 cases of inherited and familial myoclonus, associated with essential nystagmus, besides a number of cases of essential familial nystagmus.

Berliner klinische Wochenschrift.

49 (XLIII, No. 19.) *Disappointments and Hopes in Treatment of Tuberculosis.—Ueber einige Enttäuschungen und Hoffnungen bei der Behandlung der Tuberkulose. E. de Renzi (Naples).
50 Zur Methodik der Aminosäurenbestimmung im Harn (amino acids in urine). L. Hirschstein.
51 *Ueber die Ochronose. L. Pick. (Concluded.)
52 *Zum Chemismus der Ochronose. L. Langstein.
53 Advantages of Combining Organo-Therapy with Other Measures.—Die Vorzüge der Kombination der Organo-Therapie mit den physikalisch-diätetischen und balneotherapeutischen Mitteln und einige Beweismethoden dafür. A. v. Poehl (St. Petersburg). (Concluded.)
54 Uterine Hemorrhage.—Uterusblutungen. E. Runge.
55 Bier's Congestive and Suction Therapy in Affections of Skin and Genital Organs.—Ueber Stauungs- und Saugtherapie bei eitrigen Affektionen der Haut und der Geschechts-Organe. K. Tillmann. (Concluded.)
56 Ueber rhythmisch auftretende pathologische Symptome in der Menakme und Menopause des Weibes und deren Balneotherapie. E. H. Kisch.
57 Ueber Milt-Regelung bei Diabetes mellitus. Lenné.
58 Sanatoria for Children.—Das Kinderheilstättenwesen in Deutschland. P. Munz.
59 Balneologischer Bericht aus Marienbad. J. Kugler.
60 *Zur Palpation des Abdomens. A. Pollatschek.

49. Disappointments and Hopes in Treatment of Tuberculosis.—De Renzi has been experimenting with carbon dioxid as a means of influencing the course of tuberculosis, but was obliged to abandon all hope from this source. The antagonism between tuberculosis and emphysema is still unexplained. In regard to forced feeding he has found the carbohydrates, especially sugar, of great value in raising the general tone and strength of the tuberculous. Oatmeal is not liked or tolerated among his patients, but levulose, dextrin and cane

sugar, up to 300 or 400 gm., are proving very useful, especially levulose. The sugars increase the weight. His patients thrived best on from 100 to 120 gm. a day. In forced feeding the importance of frequently changing the food must always be borne in mind. In regard to repose, he has found relative rather than absolute repose better for the tuberculous. "Possibly," he adds, "the gout which is so prevalent in the southern Italian provinces requires moderate exercise, even in the tuberculous." In regard to the necessity for repose, he states that tuberculous guinea-pigs kept in cages that were shaken by an electric motor, died sooner than the controls in quiet cages. He remarks that the physician should not prescribe any medicine for his tuberculous patient. The only exceptions are oxygen and sodium salicylate. He has found that tuberculous guinea-pigs, given oxygen to inhale, survived much longer than the controls. In 6 cases in which he has applied it in the clinic, the symptoms subsided, and he is inclined to regard it as promising remarkable results when the technic of its application shall have been perfected. The oxygen has no specific action on the tubercle bacilli, but it increases the resisting powers of the organism. His experiments with ozone, both for animals and in the clinic, gave invariably negative results. His experience with sodium salicylate has been very encouraging. He has been giving it in his clinic since 1900 in daily doses of from 1 to 10 gm., averaging 3 or 4 gm. The reduction of the temperature is the most striking effect. It sometimes occurs with a few small doses, but in other cases not until after a few weeks or months. If the salicylate is suspended, the temperature is apt to rise again at first, but after the drug has been given long enough, apyrexia persists even when salicylate is no longer taken. No aggravation was noticed from the drug in the cases with complicating nephritis, except a slight transient increase in the albuminuria at first; and no symptoms on the part of the kidneys were observed in the patients in whom these organs were sound. Experiments with guinea-pigs gave negative results. He explains the favorable action of the salicylate as possibly due to its specific influence on the blood. It binds the oxygen more firmly to the hemoglobin, transforming it into methemoglobin. It is possible, therefore, that its influence is due to the larger amount of oxygen thus assimilated by the organism. Its effect on the fever, he states, surpasses that of any other drug he has tried, while it does not interfere with the physiologic metabolism. Ozone, on the other hand, had an inhibiting influence on the respiratory movements and on the nervous system in his experiments.

51 and 52. **Ochronosis.**—Pick reports the ninth case on record (according to his compilation), of pathologic brownish-yellow to black staining of the tissues, especially the cartilages, tendons, arteries and kidneys, as well as the skin. His was the only case diagnosed during life. The patient was a woman of 77, whose face was dark brown, and all the cartilages, etc., were found brown to black. In this and in another case on record the patients had used carbolic acid freely on chronic leg ulcers, and he is inclined to regard the ochronosis as possibly, in some cases at least, the result of chronic carbolic acid intoxication. There do not seem to be any grounds for connecting the condition with alkaptonuria.

60. **To Facilitate Palpation of Abdomen.**—Pollatschek recommends the preliminary application of cataplasms to the abdomen to soften it and thus to facilitate palpation. Under the moist heat the muscles relax as in a warm bath.

Deutsche medizinische Wochenschrift.

61 (XXXII, No. 26.) *Waller's Law.—Ueber das Wallersche Gesetz. Zander.
62 *Functional Tests of Heart Muscle.—Funktionelle Bestimmung der Leistungsfähigkeit des Herzmuskels und deren Bedeutung für die Diagnostik der Herzkrankheiten. Gräupner.
63 Precipitation Test of Albumin in Food.—Der quantitative Nachweis von Eiweissnahrungen mit Hilfe der Präzipitin-Reaktion und seine Anwendung bei der Nahrungsmittelkontrolle. A. Schulz.
64 Spirochätenbefunde in den Organen kongenital syphilitischer Neugeborener. H. Schlimpert.
65 Ueber Filtrat-Aggressine. E. Levy and W. Fornet.
66 Fall von Staphylococcen-Septicämie. L. Vincenzi.
67 Beitrag zur Behandlung der Sepsis mit Kollargol. Bökelmann.
68 Skiagrams in Relief.—Zur Herstellung plastisch wirkender Röntgenphotographien. R. Lewisohn.
69 Zur streitfrage ueber den Fettgehalt in den Handelssorten des Kakaos (fat in cocoa). E. Harnack.

61. **Waller's Law.**—Zander is prosector at Stieda's Institute of Anatomy at Königsberg, and his experience in regard to the results of severing a nerve has shown that Waller's law must be recast in a new mold to conform to present knowledge. He asserts that sensory nerves can be permanently shut off only by removal of the ganglion. Sudden tearing out of the nerve, causing irreparable injury to the cells of the ganglion, has practically the same effect. As there is evidently no regeneration in the fibers of the brain and spinal cord, conduction is never restored after they are severed. Consequently, severing the roots between the ganglion and the central organ also excludes permanently the sensory nerves. This operation might be applied, he states, in case of trigeminal neuralgia. Excision of large sections of the nerves does not prevent the growing in of fibers from other nerve domains. Regeneration of motor nerves occurs more rapidly and more completely the earlier the peripheral is united with the central stump. If union with its own central stump is impracticable it may be implanted in an adjoining nerve, or a plastic operation be done on the nerve. Tillaux has reported a case in which, fourteen years after the median nerve had been severed, it was reunited with a suture and function restored. This encourages intervention even at a late date.

62. **Functional Test of Working Capacity of the Heart Muscle.**—Gräupner practices at Nauheim and has been conducting research at the University Institute of Hydrotherapy at Berlin, making a special study of the blood pressure as an exponent of the condition of the myocardium. On the basis of this experience he proclaims that functional tests of the heart must take into consideration the blood pressure, the volume of the heart beat, the degree of tension in the vessel walls, and also the mechanical pressure of the amount of blood in the region, which stretches mechanically the walls of the vessels. The importance of the behavior of the blood pressure as an index of the functional capacity of the heart has never been duly appreciated, he says. The regular changes in the blood pressure indicate the ability of the myocardium to adapt itself to existing conditions. This is especially noticeable when a certain group of muscles is called on for a certain special exercise, and the blood pressure is recorded every half minute, repeating the test again and again. He has devised an ergometer for the purpose, and has the patient stretch or bend both arms or legs while reclining. The theoretical premises as to the way in which the blood pressure first rises, then drops and then rises again a little, and finally settles back to the preceding figure, have been completely realized in practice. In health the blood pressure shows very little change during the exercise test. The rise and fall are minimal, although the blood drawn to the group of muscles performing the exercise leaves the vessels elsewhere comparatively empty. To restore the balance afterward the blood rushes away and the blood pressure drops. This is followed by a return wave, which again recedes. The extremes are further apart as the myocardium is less able to adapt itself to the demands made on it by these fluctuations in the mass of the blood. The variations in the blood pressure, therefore, are an index of the functional capacity of the myocardium. If it is enfeebled, then it is unable to control the blood sufficiently to compensate these fluctuations, and the result is shown in the height of the fluctuations in the blood pressure and the tardiness with which the balance is restored. Pathologic resistance in the vascular domain enhances this effect. With the aid of this functional test it is possible to determine in case of a valvular defect whether or not the myocardium is also affected. It is able, further, to differentiate whether a systolic mitral murmur is evidence of an actual valvular lesion or not, and whether the systolic murmur at the aorta, which is so frequently encountered in arteriosclerosis, is only "muscular," that is, due to some arteriosclerotic changes in the myocardium. It also indicates whether the myocardium is actually

enfeebled in case of dilatation in the right or left ventricle, or whether the enlargement of the area of cardiac dullness is due to pathologic vascular resistance. The test also serves to decide whether or not there is actual congested kidney in case of the presence of albumin and hyalin casts.

Deutsche Zeitschrift f. Chirurgie, Leipsic.

70 (LXXXII, Nos. 1-3.) Resistance to Torsion of Joint Ligaments.—Die Torsionsfestigkeit des Gelenkbandapparates. Torsions-Versuche an den Extremitätengelenken des Menschen. J. Fessler.

71 Bone Formation in Goiters.—Knochenbildung in Strumen. H. Hunziker and R. Pfister.

72 Classification of Femoral Hernias.—Ueber den äusseren Schenkelbruch, nebst Bemerkungen über die Klassifizierung der Schenkelbrüche. Axhausen.

73 Ueber lokale Eosinophilie der Niere (of kidney). G. Sultan.

74 *Ueber die heteroplastische Deckung von Schädel-Defekten mit Celluloid (for skull defects). Blecher.

75 Isolierte Fraktur des Tuberculum majus humeri. Nieszytka.

76 Zur Lehre von der Fraktur des Calcaneus. Voeckler.

77 *Zur Diagnose und Therapie des primären Sarkoms der Kniegelenkkapsel (of capsule of knee). A. R. v. R. Rydygier.

78 Beitrag zur Genese der Gesichtsspalten (hare lip). M. Brandt.

79 Surgical Cure of Amniotic Cord Groove in the Leg.—Operative Heilung einer amniotischen Abschnurung am Unterschenkel. G. Ottendorff.

80 *End-Resultate konservativer Behandlung der tuberkulösen Coxitis. S. Lewinach.

74. **Celluloid Plates to Close Defects in the Skull.**—A celluloid plate has been used to close a defect in the skull in 11 cases to date, according to Blecher's figures. Two of the patients have been lost from sight; in 2 severe preëxisting troubles still persist, but the others so far are entirely free from any disturbances. The interval ranges from 4 to 7 and 8 years. This proportion of permanent cures is larger, he says, than in case of bone prothesis. The celluloid plate does not actually heal into the tissues, but remains always a mere mechanical cover. It is especially advantageous when, on account of caries of the bone, the wound may have to be opened up again later. Transparent celluloid might be used if desired. The celluloid plate causes no reaction, and no adhesions form on its shiny surface. Blecher's own patient was a man of 24. The results in this case have been eminently satisfactory for nearly five years to date.

77. **Primary Sarcoma of the Knee.**—From a comparison of the 9 cases on record with a case personally observed, the following conclusions seem evident to Rydygier: The sexes are about evenly divided (6 women to 4 men). The lesion develops between 20 and 30 and on one side only. The sarcoma may be sharply circumscribed and more or less movable, from the size of a bean to that of an orange, or it may be a diffuse infiltration of the capsule, or both forms may be blended, the diffuse infiltration containing one or more nodules. The functions of the joint were impaired very little, if at all, in the cases on record, and the lesion did not cause pain, except in one or two instances. In these there was considerable pain at first, but it subsided later and recurred only after a severe traumatism. In March's case there was no pain until recurrence. Puncture always revealed a reddish, clear fluid or blood, never pus. The glands in the inguinal region were not enlarged. Slight temperature was observed in only one case, and in one the knee is said to have felt hot. The remarkably slow course of the lesions was a striking feature. The first symptoms had been noticed 2 years before the patient, in the personal case described, had applied for treatment. The interval ranged from 9 months to 3 and 13 years in some cases. Hardie's patient did not consult a physician for 5 and March's for 14 months, and the latter patient was under treatment for 6 years. The absence of pain, of friction sounds, of pus, of atrophy of the muscles, of contracture, speaks against tuberculosis. Roentgen examination also shows the bone intact. Resection of the knee joint with thorough extirpation of the entire neoplasm is sufficient for most cases of the kind. Amputation and exarticulation should be reserved for far advanced cases.

80. **Tuberculous Hip-joint Disease.**—The end results in 100 cases treated by Kocher vary according as there was suppuration or not. Without suppuration 49 out of 66 cases (74.2 per cent.) had excellent remote results, while this proportion was only 39 per cent. in 23 suppurative cases. The cases are discussed from various standpoints. About 70 per cent. of the patients were under 20 and half of these under 10.

Münchener medizinische Wochenschrift.

81 (LIII, No. 19.) Ueber die pockenverdächtigen Formen der Varicellen (simulating smallpox). W. Ebstein.

82 Die Anästhesie in der kleinen Chirurgie. Verth.

83 Zur Methodik der Viskosität-Bestimmung des menschlichen Blutes (of blood). Determann.

84 Ein zweiter Fall von Abknickung der Speiseröhre durch vertebrale Ekchondrose (kinking of esophagus). H. Zahn.

85 Gangrene of Both Lids After Slight Trauma of the Brow.—Symmetrische Gangrän beider Lider nach Verletzung an der Stirne. W. Abetz.

86 *Fall von arteficieller, akuter Nephritis nach Gebrauch von Peru-Balsam. A. Richartz.

87 *Heilung eines Falles von Tetanus traumaticus. Id.

88 Standard Nursing Bottle.—Eine Normalflasche für die Säuglingsernährung. H. Cramer.

89 Bildung spezifischer Leukotoxine im Blut-Serum als Folge der Röntgenbestrahlung der Leukämie, der Pseudoleukämie und des Lymphosarkoms (leucotoxins under Roentgen treatment). C. Klieneberger and H. Zoeppritz. (Concluded.)

90 (No. 20.) *Ein neuer Weg für die Operation der malignen Nasentumoren. A. Denker.

91 Zur Frage des sporadischen Auftretens von Meningitis cerebrospinalis (Weichselbaum). Küster.

92 Progress in Treatment of Flat Foot.—Fortschritte in der Plattfussbehandlung. G. Hohmann.

93 Ueber Analgesie der Achilles-Sehne bei Tabes (Abadiesches Symptom). Racine.

94 Warum sind die Lähmungen des Nervus peroneus häufiger als die des Nervus tibialis (comparative frequency of paralyses). E. Hartung.

95 *Beiträge zu den klinischen Erscheinungsformen der abdominalen Arteriosklerose. J. Rosengart.

96 Die Gas-Gemisch-Narkose mittelst des Roth-Dragerschen Sauerstoff-Apparates. W. Hagen.

97 Symmetrische Hand-Rücken-Lipome bei Togo-Negern. M. Martin.

86. **Acute Nephritis After Use of Peruvian Balsam.**—A girl of 16 was treated for scabies with three inunctions of 10 per cent. Peruvian balsam in one day. Symptoms of severe nephritis developed soon after, and the fourteenth day coma developed, with death the next morning. Nothing could be found to indicate any other cause for the nephritis than the Peruvian balsam. Richartz advises examination of the urine when using this remedy. He has found it extremely useful for superficial wounds and leg ulcers in the familiar formula of 5 gm. Peruvian balsam, 0.3 gm. silver nitrate and 45 gm. of simple ointment. Intoxication need not be feared from this form of its application on small areas.

87. **Recovery from Traumatic Tetanus.**—The symptoms in the case described were kept under control with morphin. About eight hours after an injection of 100 units of antitoxin there was a marked exacerbation of all the symptoms, and Richartz does not believe that its influence was favorable. The patient was a lad of 17. Morphin was injected about every four hours, its effect being always markedly beneficial. It allowed ample ventilation of the lungs and thus obviated suffocation, which he believes is the most frequent cause of death in tetanus. On account of the increasing rigidity of the muscles engaged in respiration, hypostasis and pulmonary edema are liable to occur; the patient is distressed by constant desires to cough, but is unable to do so. Death follows with increasing cyanosis. Richartz had occasion to witness this train of phenomena in a case of puerperal tetanus not long ago. Three injections of antitoxin in this case had failed to relieve. In the present case there was slight bronchial irritation at first, but it soon subsided. The incubation in this case had been 17 days and the symptoms were never of the severest type.

90. **Removal of Malignant Tumors in Nose Through Upper Jaw.**—Denker gives illustrations of his technic. The upper lip is mobilized and pushed up as far as desired, and access to the rear of the nose is obtained by resection of the facial and median wall of the maxillary sinus. An extensive operation on the nose can thus be done without leaving a trace on the face. In his experience with 3 cases he found that the dropping of blood and secretions into the upper air passages was more easily prevented than by other technics.

95. **Clinical Manifestations of Abdominal Arteriosclerosis.**—Rosengart remarks that recent discussions of arteriosclerosis have shaken many old established ideas. Cases have been reported in which the blood pressure had always been normal and others in which, with prominent tortuous arteries in the temples, no traces of arteriosclerosis were found anywhere in

the body at autopsy. His experience has shown that abdominal arteriosclerosis is liable to induce annoying flatulence, painful distension, especially in the right hypochondrium, and occasional colic and eructations, the latter sometimes bringing relief. The patients are irritable and sleep is broken and fitful. Sometimes the condition in the night is improved if the patient eats something. The appetite is good, with a tendency to constipation. The stomach digestion is generally good, with occasionally a little hyperchlorhydria. Some patients in this class have proctitis with considerable secretion, eczema of the anus and hemorrhoids; slight albuminuria may also be observed. Gradually the pulse rate increases and a systolic murmur becomes audible sometimes, with accentuation of the second aortic sound; the blood pressure rises and the diagnosis of arteriosclerotic disturbances is rendered certain by an attack of angina pectoris. Some of these conditions may exist for years and deceptively simulate nervous dyspepsia. The patients are generally men who tell of overwork. Differentiation may be difficult, as signs of arteriosclerosis elsewhere than in the splanchnic region may be entirely lacking. Slight cardiac insufficiency may be discovered, with considerable difference in the pulse, standing or lying or after slight physical exertion. The patient may complain of dizziness, headache and possibly weakness of memory, and may display a remarkable intolerance of alcohol, especially men who have been in the habit of drinking to some extent. Buzzing in the right ear is often mentioned. Patients from the lower classes sometimes state that a brother, father or husband had "suffered a long time from hemorrhoids and then they went to his chest and he died." Rosengart learned the meaning of this statement when studying these initial manifestations of arteriosclerosis developing in the splanchnic region. In another series of cases the above symptoms were accompanied by vomiting, occurring particularly in the night, with sometimes blood in the vomit and stools and violent colics. This group comprises cases of abdominal arteriosclerosis with thrombosis of some of the finer arteries. He reviews some cases from the literature and one personally observed belonging to this class.

Therapie der Gegenwart, Berlin.

98 (XLVII., No. 3.) Rapid and Permanent Cure of an Old Caustic Stricture of Esophagus by Thiosinamin.—Heilung einer alten Verätzungsstriktur durch Thiosinamin. K. Pollack (Stettin).
99 *Behandlung des Diabetes insipidus mit Strychnin-Injektionen. L. v. Ketly (Budapest).
100 Zur Hydrotherapie des Morbus Basedowii. J. Sadger (Vienna).
101 *Die Skoliosen-Behandlung des praktischen Arztes. G. Müller.
102 Ueber Trypanosomen und Trypanosomenkrankheiten. K. Fürstratt.
103 Ueber eine hygienische Verbesserung der Frauenkleidung (dress reform). T. Hoffa.
104 Alte Rezepte von C. Gerhardt.
105 Successful Mercurial Treatment of Gout.—Erfolgreiche Quecksilberkur bei einem Gichtkranken. L. Schuster. One Case.

99. Treatment of Diabetes Insipidus with Strychnin.—Ketly found injections of strychnin nitrate extremely useful in 3 cases of idiopathic diabetes insipidus. He commenced with 0.5 mg., increasing every second day by 0.1 mg. to a maximum of 0.01 gm. The patients were 3 men from 31 to 36 years old. The subcutaneous injections were given daily for about a month in one case and then the strychnin was given by the mouth for 3 days. The amount of urine dropped from 8.000 to 1.500 c.c., and all the symptoms permanently disappeared. In another case the diabetes persisted after the cure of a syphilitic brain trouble under mercurial treatment. Under the strychnin injections the amount of urine declined from 11.500 to 3.000 c.c. in 13 days, and the polydipsia vanished with the polyuria. This improvement was only temporary, however, as the symptoms recurred in two or three months. They subsided again under strychnin by the mouth. One female patient did not show any improvement under the strychnin.

101. Treatment of Scoliosis by the General Practitioner.—Müller describes in this profusely illustrated article the technic of massage and exercises for patients with scoliosis. He advocates the use of what he calls the "autogymnast." A ring like a stirrup fits over the foot, the heel in the ring, and is connected with a handle held in the hand. The connecting cord runs loosely through a ring fastened in a loose belt around the bare waist. All kinds of exercises can be done with a handle in each hand, the traction pulling on the corresponding foot. Particularly effectual exercises can be done with the child lying on a table, the trunk above the waist projecting over the edge, an assistant holding the feet down to the table, while the child works the autogymnast handles in various exercises or performs the motions of swimming.

Gazzetta degli Ospedali, Milan.

Last indexed, page 159.

106 (XXVII, No. 21.) *Cura della anemia nella anchilostomiasi. A. Berti.
107 *Le iniezioni parenchimali intrapolmonari di batteriolisina tubercolare nel trattamento della tubercolosi polmonare. S. Livierato.
108 (No. 24.) *La tubercolosi nell'esercito italiano (in army). C. Sforza.
109 *Autosiero-prognosi. M. Landolfi.
110 The Kidney and Liver in Splenectomized Animals.—Il rene ed il fegato negli animali smilzati. T. Silvestri.
111 Casistica di curiosta terapeutiche. A. Campani.
112 (No. 27.) *Influenza della tubercolina sulla infezioni sperimentali. C. P. Gozzia.
113 *Ligature of Popliteal Vein in Treatment of Varices.—La cura delle varici alle gambe colla legatura della vena poplitea (l'parona). C. Viscontini.

106. Treatment of Anemia in Ankylostomiasis.—Lucatello has been experimenting since 1900 with specific hemolysins as a means of treating anemia of various origins. Blood formation is stimulated by the injections of the specific hemolysins, and they have also a decided antitoxic action. He has been testing this method of treatment in the anemia of uncinariasis since 1904, and the results encourage further attempts in this line, although the experiments to date have always been in the more serious cases and without anthelmintic measures, in order to test the efficacy of the prepared serum to the utmost. Guinea-pigs were injected with serum from patients with pronounced anemia from ankylostomiasis, after previously heating the serum to 56 C. for half an hour to destroy the Ehrlich complements. From 25 to 50 c.c. of the serum was then injected subcutaneously into the guinea-pig. About 500 c.c. were injected into the animal the first month, 100 the second and 110 in the third month. The 3 patients treated with the serum of the guinea-pig after this preparation were given subcutaneous injections of from 2 to 5 c.c. two or three times a week. The very favorable experiences to date have confirmed the harmlessness of the treatment and encourage its use as an adjuvant to anthelmintic medication.

107. Injections of Specific Tuberculous Bacteriolysins Directly Into the Lungs.—Maragliano has been treating consumptives during the last year by direct injection into the lung of specific antituberculosis material. A large number of patients have been thus treated and a detailed report will be soon published. One case is described here, as it is typical of the results in all. The case was one of chronic destructive tuberculous lesions in bronchi and lungs, with severe general toxemia. The specific bacteriolysins are obtained from animals first treated with an aqueous extract of living tubercle bacilli. The specific bacteriolysins in the serum of the animals are injected directly into the diseased lung by a technic the same as for exploratory puncture. The injections were continued a little more than a month, repeated the second third and fourth days, the amounts injected ranging from 1 to 10 c.c., with a total of 70 c.c. The effect on the temperature, sweats and expectoration was markedly beneficial.

108.—Tuberculosis in the Italian Army.—Sforza reviews the published statistics. They show that since 1876, when the total losses in the army from tuberculosis amounted to 3.66 per thousand of the force at that date, the proportion has steadily declined to 1.61 per thousand in 1902.

109. Auto-Prognosis.—Landolfi is convinced of the great value of Gilbert's method of autosero-diagnosis, which consists in reinjecting, subcutaneously, serum or effusion taken from the patient's own pleura or peritoneum. A febrile reaction follows when there is tuberculous infection, but not if no tuberculosis is present. Landolfi has been studying the reaction obtained, and he states that it is able to afford im-

portant information, not only as to the tuberculous nature of the lesion, but also as to its seriousness and the ultimate outcome. For these points the particulars of the reaction must be recorded for several days after the injection, the curve then showing details which differentiate the affection and announce the outlook. The prognosis is graver the less the amount of effusion required to obtain the febrile reaction. The less the reaction and the tardier its appearance, the milder the affection. In the days following the primary febrile reaction the temperature may surpass that first obtained, or it may equal or not approach it, the severity of the affection being announced by the prolonged reaction. In case of a negative response, the amount of effusion to be reinjected can be increased from 1 to 2, 3 or 10 c.c. If there is no response after this large amount has been injected, and if the temperature remains unchanged or varies very slightly during the days following the injections, the prognosis may be regarded as extremely favorable. He does not venture to establish the laws for this method of autosero-prognosis, but he urges others to co-operate with him in this task.

111. **Therapeutic Curiosities.**—Campani reports from Galvagni's clinic a number of cases which might be regarded as therapeutic freaks. The first relates to the sudden cure of a severe and protracted hysteric delirium by the unintentional administration of considerably more than the maximal toxic dose of morphin. The excessive dose induced prolonged vomiting and the patient was cured. In a second group of cases obstinate sciatica was cured by a large blister applied entirely around the thigh, contrary to orders. In another case severe lumbago was cured at once by excessive wet cupping. The cupping had been ordered with about 40 scarifications, but the assistant mistook the directions and applied 40 cups, experiencing some difficulty in finding space for them all. The unintentional excessive revulsion in these cases was followed by the immediate cure of the affection. In a third group, maniacal delirium subsided under the influence of a large burn on the leg, compelling the patient to remain in bed for six weeks. A woman of 70 had long suffered from leg ulcers, but they had finally healed under compresses "kept moistened with her own urine." As the ulcers healed over, she developed a confusional psychosis, but this vanished at once after a fall, which broke open the ulcerations anew. In another case a patient suffering from hallucinations was entirely cured when a varix on the leg became an open ulcer. These 3 cases in which mental disturbances were arrested or completely cured by the opening on the leg of an outlet for the escape of morbid secretions, he states, are certainly instructive. In a fourth group a patient suffering from retention of urine in acute gonorrhea was given an injection and the tip of the guide accidentally pricked the mucosa of the urethra, allowing the escape of a few drops of blood, immediately followed by spontaneous micturition. In another case a patient with rebellious metrorrhagia was cured at once by a rectal enema evacuating the overloaded rectum. In another group, 6 cases of cysts or tumors healed completely after a single exploratory puncture. This insignificant intervention may be sufficient in some cases to modify the circulation and to restore the lost balance. In conclusion a number of similar freak cases are reviewed, taken from the literature.

112. **Influence of Tuberculin on Experimental Infections.**—The tuberculin enhanced the receptivity of the animals for all kinds of infection in the experiments reported.

113. **Treatment of Varices on the Leg with Ligature of the Popliteal Vein.**—In 1904 Parona, in Italy, announced that ligature of the popliteal vein was an effectual measure for treatment of varices on the leg, as superficial varicose veins are almost invariably associated with varices in the deeper veins. He has treated 22 patients by this technic, and all were completely cured of their edema, pains and ulcerations, and there has been no recurrence in any case to date. Viacontini has applied the same measure in 2 cases and has been much impressed with its great value. If, after careful examination, the varicose veins are found to be restricted to the superficial veins, then some other technic is preferable, but if the deeper veins are at all involved then the Parona technic will be found invaluable. The vertical incision is made in the upper half of the popliteal space. The popliteal vein is detached and ligated at two points and, if possible, resected between the ligatures. The limb is then immobilized for a time.

Riforma Medica, Naples.
Last indexed, page 315.

114 (XXII, No. 19.) *Intorno a due casi di leucemia. Cura con i raggi Roentgen. E. De Renzi.
115 *Meccanismo d' azione del radio sul virus rabido (radium in rabies). G. Tizzoni and A. Bongiovanni (Bologna).
116 (Nos. 20-23.) *Sull' urobilinuria nella cloro-narcosi. A. B. Gianasso.
117 *Passive Congestion for Gonorrheal Joint Affections.—Artriti blenorragiche e loro cura con il metodo Bier. T. Secchi.
118 *Corpi organici liberi nella cavita della sierosa testicolare. A. Colcttl.
119 *Studio dell'infezione stafilococcica. U. Baccarani.
120 *Nevrectomia del grande occipitale con asportazione del 2 ganglio cervicale per nevralgia. O. Cignozzi.
121 *La chirurgia conservativa nei tumori della scapola. G. Pascale.
122 (No. 24.) Valore di alcuni metodi clinici per la determinazione delle ossidazione organiche (tests of oxidation processes). C. Gualdi.
123 Chlorin and Biliary Acids Under Use of Saline Waters.—Ricerche sul cloro e sugli acidi biliari nella bile sotto l'uso della acque clorurato-sodiche. P. Casciani.
124 (No. 25.) *Transmission of Kidney Changes to Fetus.—Sulla transmissibilita di alcune alterazioni renali sperimentali dalla madre al feto. E. Magni.
125 *Osservazioni cliniche e sperimentali sulle pneumoniti post-difteriche (post-diphtheric pneumonia). S. Cappellani.
126 Sulla rigenerazione delle fibre nervose. M. Segale.
127 (No. 26.) *Di alcuni postumi prossimi e remoti dell-Infezione tifica (typhoid sequels). V. Patella.
128 Dimostrazione istochimica del mercurio. C. Lombardo.
129 Sulla struttura dei globuli rossi (structure of red corpuscles). A. Ghelfi.
130 Indurimento di vene periferiche (induration of peripheral veins). F. Pancrazio.

114. **Roentgen Treatment of Leukemia.**—De Renzi's experience with two patients has confirmed that of others in regard to the possible striking benefit from Roentgen treatment in leukemia. The spleen was exposed to the rays for from five to twenty minutes daily for ten days, and then again for ten days after an interval of several days. The intensity of the exposures corresponded to about 8 degrees on the Benoist radiochromometer. The blood rapidly regained its normal composition, the spleen became reduced in size and the patients gained in weight.

115. **Action of Radium in Rabies.**—Tizzoni reports the latest results of his extensive research with radium in treatment and prevention of rabies. He has previously announced that it neutralizes the rabies virus in the test tube and in animals even when the disease is already established, and that it induces radioactivity in the brain of the animal under treatment. He has found lately that the length of time required for the neutralizing of the virus varies with the kind of tissue. It only requires two hours when the virus is injected into the anterior chamber of the eye, while six hours are necessary when the injection is made under the dura mater. The neutralized virus does not regain its virulence later. The emanations have very little penetrating power, and they affect the virus more in proportion to the length of the exposure rather than by the number of radioactive units represented by the specimen of radium. An interesting fact is that only the brain of the living animal becomes radioactive. Dead tissues are inert. The radioactivity is demonstrated with sensitized plates, and it seems to occur only in brain tissue and most effectually through the eye. It was never detected in animals after the eye had been removed. The phenomena observed confirm the dual action of radium, the chemical action of the emanations on the virus in the test tube and the physical energy of the radiations which elicit vital phenomena in response.

116. **Urobilinuria After Chloroform.**—Gianasso found urobilin constantly in the urine in the 25 patients examined before and after general anesthesia with chloroform. The amount was proportional to the duration of the anesthesia. He thinks that it was evidently due to destruction of red corpuscles by the drug, the passage of hemoglobin through the kidneys and its transformation into urobilin. The urobilin follows a regular curve, coinciding with the elimination of the chloroform.

117. **Passive Congestion in Treatment of Gonorrheal Joint Affections.**—Secchi applied a Bier constricting band as a last resort in 6 cases of gonorrhea. A complete cure was promptly realized in 3 cases, and all the patients were improved. He advises its use as an adjuvant. He ascribes the unmistakable relief of pain in the part to the slightly benumbing action of the constricting band pressing on the nerve trunks.

118. **Free Bodies in Testicles.**—Trauma was incriminated in 2 of the 6 cases described by Coletti and chronic inflammation was evident in all. The connective tissue reaction to the work of microbes of attenuated virulence resulted in the production of what might be called fibromas, some pedunculated and others free.

119. **Staphylococcus Infection.**—Baccarani gives the details of about two dozen cases of general staphylococcus infections of diverse types. The fever was the most striking and in some cases the only symptom. The temperature curve is characterized by "febrile groups" alternating with periods of normal and even of actual subnormal temperature. These variations may linger for two months or more. From two to five of these "febrile groups" were observed in some instances. The temperature was above normal on the whole for an average of 23 days, the range being a maximum of 39.5, 40 and 41 C., with sometimes 35 C. in the apyretic intervals. The total average of fluctuating temperature was about 46 days. The fever and the large numbers of staphylococci in the blood cause surprisingly little disturbance of the general health. Treatment should aim merely to sustain the organism in its struggle with the germs, as no specific remedy is known and the prepared serums have not answered expectations. Intravenous injection of corrosive sublimate has been suggested. The main point is to keep the patient well nourished, and for this reason the digestion should not be disturbed by drugs given by the mouth. At most a little cordial or quinin might be administered. The apyretic intervals should be taken advantage of, having the patient leave the bed as the temperature approaches normal, stimulating the skin and the nervous system with a cold sponge and light massage, with an easily digested diet. The prognosis under these measures is much better, he states, than has hitherto been accepted.

120. **Neurectomy for Neuralgia.**—Cignozzi's successful operative treatment in a severe chronic case of occipital neuralgia is described in detail, with a review of occipital neuralgia and its mechanism in general. The extensive ablation of the nerve trunk to its intervertebral ganglion, the second cervical ganglion, which was removed with the segment of the nerve, freed the patient at one stroke from his agonizing pain, and there has been no recurrence to date since 1903.

121. **Conservative Surgery for Tumors of the Scapula.**—Pascale gives an illustrated description of 2 cases and reviews the literature on the subject. The results of conservative operations have been eminently satisfactory, even in malignant disease. The functions of the arm are retained to a large extent, as the points of attachment of the muscles can generally be retained. Even when the humerus has to be resected for 5 or 7 cm., functional use of the arm is still possible. When the entire scapula has to be removed, fixation of the head of the humerus or of the stump with a metal support is always preferable to disarticulation of the arm. An interscapulo-thoracic operation is extremely serious and should be reserved for malignant tumors invading extensively the bones of the shoulder. Recurrence is the rule after this operation. Conservative operations may be repeated at need and can be undertaken early.

124. **Transmission of Kidney Changes to Fetus.**—Magni found lesions in the kidneys of newborn rabbits similar to those in the maternal kidneys, produced by the nephrotoxic substances generated in the foci of experimental hydronephrosis. The lesions in the fetal kidneys were similar to those found in the kidney after experimental stricture of the other ureter. The nephrotoxic substances evidently pass through the placenta to the fetus, suggesting danger from this source in case of Bright's disease in the mother.

125. **Postdiphtheric Pneumonia.**—Cappellani summarizes 35 cases in which evidences of pneumonia were found after diphtheria. The pneumonia in some had not caused any appreciable clinical manifestations, and yet it had been the cause of death in 23 instances. Experimental research confirmed his assumption that both the streptococcus and the pneumococcus acquire unwonted virulence in the presence of the products of the diphtheria bacillus. In the cases related the pneumonia had developed during the phase of the greatest toxic action of the diphtheria bacilli and when the organism was being saturated with the absorbed products. The facts related emphasize the necessity for warding off secondary infection during this stage. Local disinfection of the mouth and upper air passages may prove an important aid.

127. **Typhoid Sequels.**—Patella describes a case of post-typhoid polyneuritis, accompanied by incipient endarteritis, in a young man. The arteritis was diagnosed from the changing composition of the blood. This shows in graphic manner the devastation being wrought in the arteries by the typhoid infection, entailing sclerosis later. Histologic study of the arteries shows the influence of preceding typhoid or other infection in incipient arteriosclerosis and aneurism. He adds that no one ever knows when, if ever, he has entirely recovered from typhoid fever. Signs of transient participation of the kidney in the typhoid process were likewise noted in his case. Sclerosis of the kidneys may be a sequel of typhoid infection. Enriquez succeeded in producing sclerosis of the kidneys in monkeys by three injections of diphtheria toxins. Patella's experimental research has shown that the same result can be obtained with typhoid urine and typhoid toxins. He succeeded in producing both generalized and focal sclerosis in the kidneys by this means, entirely distinct from the parenchymatous process and from diffuse arterial changes.

Books Received

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

PRACTICAL MEDICINE SERIES, Comprising Ten Volumes on the Year's Progress in Medicine and Surgery. Under the general editorial charge of G. P. Head, M.D., Professor of Laryngology and Rhinology, Chicago Post-Graduate Medical School. Vol. IV. Gynecology edited by E. C. Dudley, A.M., M.D., Professor of Gynecology, Northwestern University Medical School, and C. V. Bachelle, M.S., M.D., Gynecologist to the German Hospital, Chicago. Series 1906. Cloth. Pp. 227. Price, $1.25. Chicago: The Year Book Publishers. 1906.

SURGICAL AND MEDICAL EMERGENCIES IN ABSTRACT. By S. L. McCurdy, A.M., M.D., Surgeon P. C., C. & St. L. Ry., Professor Orthopedic and Clinical Surgery, West Penn. Medical College, etc., Pittsburg, Pa. Flexible Leather. Pp. 153. Pittsburg, Pa.: Medical Abstract Publishing Company. 1906.

CLINICAL BACTERIOLOGY AND HEMATOLOGY FOR PRACTITIONERS. By W. D. Emery, M.D., B.Sc., Clinical Pathologist to King's College Hospital and Pathologist to the Children's Hospital, Paddington Green. Cloth. Pp. 240. Price, $2.00. Philadelphia: P. Blakiston's Son & Co. 1906.

TWENTY-EIGHTH ANNUAL REPORT OF THE STATE BOARD OF HEALTH of the State of Connecticut for the Year 1905, with the Registration Report for 1904 Relating to Births, Marriages, Divorces and Deaths. Cloth. Pp. 296. New Haven, Conn.: The Tuttle, Morehouse & Taylor Co. 1906.

REGISTRATION OF BIRTHS AND DEATHS, MARRIAGES AND DIVORCES IN MICHIGAN. Thirty-sixth Annual Report of the Secretary of State, for the Year 1902. Cloth. Pp. 212. Lansing, Mich.: Wynkoop, Hallenbeck, Crawford Co. 1906.

INDEX-CATALOGUE OF THE LIBRARY OF THE SURGEON-GENERAL'S OFFICE, UNITED STATES ARMY. Authors and Subjects. Second Series. Vol. XI. Mo-Nyström. Cloth. Pp. 858. Washington: Government Printing Office. 1906.

TRANSACTIONS OF THE ASSOCIATION OF HOSPITAL SUPERINTENDENTS. Seventh Annual Conference held at Boston, Mass., Sept. 26-29, 1905. Vol. VII. Paper. Pp. 306. Published by the Association. 1905.

HYGIENE OF PREGNANCY. By W. B. Jennings, Ph.B., M.D., Attending Physician (O.P.D.), St. Mary's Free Hospital for Children. Flexible Leather. Pp. 48. New York: Medical Review of Reviews (Inc.).

BEHAVIOR OF THE LOWER ORGANISMS. By H. S. Jennings, Assistant Professor of Zoology in the University of Pennsylvania. Cloth. Pp. 366. Price, $3.00. New York: The MacMillan Company. 1906.

DIET AND DIETETICS. By A. Gautier. Edited and Translated by A. J. Rice-Oxley, M.A., M.D. Cloth. Pp. 552. Price, $3.50. Philadelphia: J. B. Lippincott Company. 1906.

REPORT OF THE COMMISSIONER OF EDUCATION for the Year Ending June 30, 1904. Vol. I. Cloth. Pp. 1176. Washington: Government Printing Office. 1906.